Electronic Reporting of Continuous Emission Monitoring (CEMS) Information User Manual

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Addendum

Entire document – Replaced ESRD with AEP

Entire document - Updated website links to reflect current website links

Entire document – Added AER (Alberta Energy Regulator)

Section 1 – Updated Ministry Name to Alberta Environment and Parks (AEP)

Section 6.3 Added an extra question and answer about error messages

Section 7 – Updated sign-off page instructions; change from Oracle Java interface to web forms in Microsoft .NET.

Section 8 – Updated process for new facilities submitting data to production database, instead of test database, unless requested.

Section 10.6 Added an extra question and answer re PCP and missing data.

Version 2.2 – updated document formatting only as per AEP web requirement

Version 2.3 – updated Section 5.1 with new DOS command prompts

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1. Introduction

Government of Alberta Ministry of Alberta Environment and Parks (AEP) and Alberta Energy Regulator (AER) requires Continuous Emission Monitoring (CEM) Operators to submit required monitoring information electronically; reducing administrative overhead, and facilitating timely reporting.

The intent of this user manual is to provide guidance on the procedures to be followed to successfully create, upload, verify, and submit the Monthly CEM data to AEP and AER. If there is any conflict between what is written in this manual or written in any code, regulation, or directive; the code, regulation, or directive will take precedence.

To successfully complete the submission of your CEM data, **a two-step process must be completed**. Only when both of these steps have been successfully completed and a confirmation number has been issued is the data deemed submitted to AEP or AER.

The data must first be uploaded to the File Transfer Protocol (FTP) site in a standard format as outlined in this document. Only Authorized Users are allowed to submit data to AEP or AER. AEP Data Management will provide a unique username and password to "Authorized facilities", which will be referred to as the CEMUser in this manual. Only one CEMUser FTP ID and Password will be assigned to each Authorized facility and has no restrictions as to who can use it within the specified facility.

Multiple CEMSubmit Usernames (UID) and Passwords (PWD) may be issued to each facility to provide opportunity for personnel backup for submission. These usernames and passwords are non-transferable and their security is to be maintained by the designated user. In addition, multiple facilities can be assigned to each CEMSubmit Username.

It is the responsibility of each facility to ensure the CEMS Coordinator (CEM.UserCoord@gov.ab.ca) is contacted when a user is to be created or terminated.

Once the file has been successfully uploaded via the FTP site to AEP, the data will go through a validation process. The results will be emailed to the address indicated in the Header Record (HH) of the file being submitted. Only when the file meets all the validation conditions it is ready to be submitted into AEP's database. This process is completed by using the "Industrial Sign-off form" available through the web page:

- Industrial Sign-Off

Submitting data, when logged in using the CEMSubmit username and password, is the electronic equivalent of signing off the report (i.e. certifying that the data is correct).

This document does not support *Environmental Protection and Enhancement Act* (EPEA) Approval Requirements for Notification, Emergency Operation, or Contravention Reporting.

If you are dealing with a situation or circumstance, where you are required to immediately report to AEP or AER, please call (780)-422-4505 or 1-800-222-6514.

This document does not cover the digital reporting of regulator reporting. All AEP and AER air digital reports are to be submitted via:

- air.reporting@gov.ab.ca or
- EPEA.Reports@aer.ca

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Once the CEMUser FTP ID and Password is issued to the authorized facility, any user can access the FTP account assigned to the facility using this CEMUser FTP ID and password.

A unique CEMSubmit Username and Password will be assigned to each company representative responsible for verification of the CEMS data.

If you are responsible for CEMS data verification at your facility and have not registered to be assigned a username and password, please contact (via email) the CEM User Coordinator at:

- **CEM.UserCoord@gov.ab.ca**

From time to time AEP Data Management will email out updates or revisions to this user manual, and notifications related to the status/outages of the AEP system. To ensure you are on the mailing list, an email must be sent to the CEM User Coordinator at the email above. State in the subject line, **CEM mailing address**, and these addresses will be added to the list. It is the facilities responsibility to notify the CEM User Coordinator of any changes regarding the contact.

1.1 Questions and Answers

Throughout this manual, frequently asked questions and answers will be included to assist the user with the submission of their data.

Question: When can I submit data?

Answer: AEP will make, as best as it can, the sites available between 0700 and 2300/ 7 days a week. If either site is not accessible, please contact (via email) the CEM User Coordinator at:

- CEM.UserCoord@gov.ab.ca

Please note that technical support will only be available during business hours, so it is important to ensure the data is submitted within the business hours timeframe.

Business hours 8:15am - 4:30pm, Monday to Friday

Question: Will I be penalized for a late submission, if I am unable to access the website due to the AEP system being down?

Answer: No, as long as you notified the CEM User Coordinator immediately that you are unable to submit monitoring information because the website is down and if you submit your information within 24 hours of being notified that the website is operational.

In some cases facilities computer systems have security restrictions, preventing the user from loading the site. If you experience this, please note that the final signoff of the data is not restricted to your facility location and can be done from another standalone system.

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Question: I have forgotten my password, now what?

Answer: Contact (via email) the CEM User Coordinator, during business hours, to obtain a new password.

Passwords are unique to the '**Authorized Users'** and can only be reset. AEP Data Management does not have the ability to reference the old password.

Question: We have a new person requiring a username and password, how do we request and receive a new CEMSubmit Username and password?

Answer: New usernames and passwords will not be assigned unless requested by the plant manager/ supervisor or a current authorized user at the facility; this process has been implemented to protect facility information.

The supervisor must email the CEM User Coordinator with the name, contact information, and email of the new user. The CEM User Coordinator will inform the new user via email with the requested information. A follow-up email will be sent to the supervisor advising that the information has been forwarded to the new user.

If this user is to be placed as the contact for notifications and updates add to the subject line of the email: **CEM mailing address** and include the request in the body of the email.

If a CEMSubmit Username is no longer required it is the responsibility of the plant manager/supervisor to contact the CEM User Coordinator to have the account terminated.

Question: How do I obtain notification of new user manuals or updates on the status of the AEP system?

Answer: To ensure you obtain updates, an email must be sent to the CEM User Coordinator at:

- CEM.UserCoord@gov.ab.ca

In the email state in the subject line, **CEM mailing address**. These email addresses will be added to the list. It is the facilities responsibility to notify the CEM User Coordinator of any changes regarding the contact.

Question: Is the email in the Header Record used by AEP Data Management to notify my facility of any system outages?

Answer: No, the email address in the Header Record is only used to notify the submitter on the status of the monthly file being submitted. To ensure you obtain updates, an email must be sent to the CEM User Coordinator as per the question above.

- CEM.UserCoord@gov.ab.ca

REMEMBER: YOUR CEMSUBMIT USERNAMES AND PASSWORDS ARE SECURE AND IT IS YOUR RESPONSIBILITY TO MAINTAIN THEIR SECURITY

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2. Creating a file for Submission of CEM data

AEP Data Management has chosen a standard FTP format for the Electronic submission of CEM data. Each regulated facility will be provided with a unique Station ID for each of their regulated emission sources as outlined in their Approval. Once the station has been created by AEP Data Management, and usernames and passwords have been issued, and parameters added to the station, you may begin submitting data.

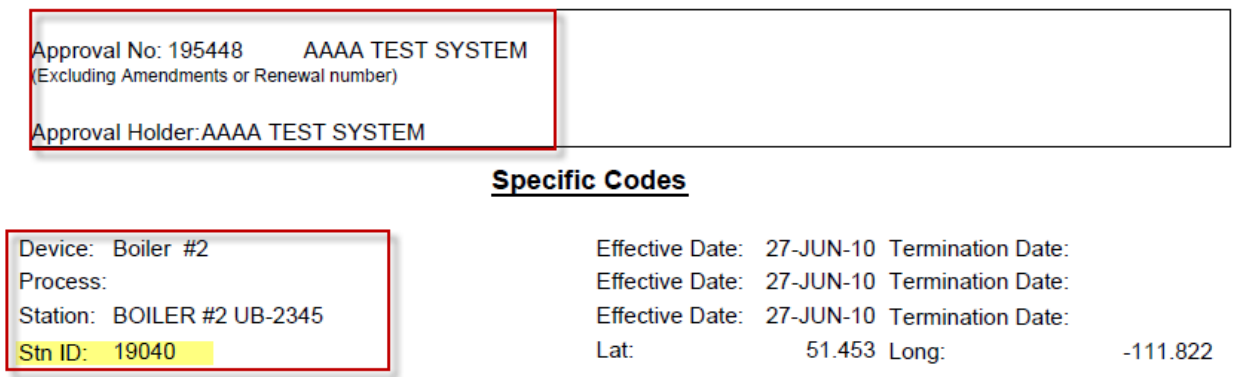
To assist each Authorized User with submitting data, AEP Data Management has created facility specific reports titled "*Codes for Electronic Reporting*". Your facility specific report is available by contacting the CEM User Coordinator. This report is designed to assist the Authorized Users in creating their specific data file. If there is any information missing or incorrect, or that does not reflect the monitoring or reporting as stated in your EPEA Approval or amendments, please contact the CEM User Coordinator for verification.

If an amendment or renewal of your Approval is issued and it requires changes to your "*Codes for Electronic Reporting*", the CEM User Coordinator needs to be contacted to make the necessary updates.

It is the responsibility of the Authorized Users to ensure all data required by their Approval associated with the facility is submitted.

2.1 Codes for Electronic Reporting

When you receive your facility's specific report, you should first check to ensure that the report pertains to the **Approval Holder and the facility** that the report was requested for.


Approval No: 195448 AAAA TEST SYSTEM
(Excluding Amendments or Renewal number)

Approval Holder:AAAA TEST SYSTEM

Specific Codes

Device: Boiler #2
Process:
Station: BOILER #2 UB-2345
Stn ID: 19040

Effective Date: 27-JUN-10 Termination Date:
Effective Date: 27-JUN-10 Termination Date:
Effective Date: 27-JUN-10 Termination Date:
Lat: 51.453 Long: -111.822

If there is a requirement to monitor and report CEM data, each regulated emission source point will be issued a unique **Station ID.** In the example above the unique ID number of the Station is 19040, and the regulated source is Boiler #2, unique identifier: UB-2345 (as documented in the Approval or on the Authorized User Designate Form). The report may include a historic listing of your Approval continuous emission monitoring and reporting conditions (identified by a historic termination date); **only those conditions that are in effect for the reporting period are to be submitted.** Reporting units and intervals are dictated by an approval limit; if no limit is identified within the Approval, standardized units and intervals for the parameter will be assigned. It is the facility's responsibility to ensure the reporting of all units and parameters reflects the information outlined in the **"***Codes for Electronic Reporting***".**

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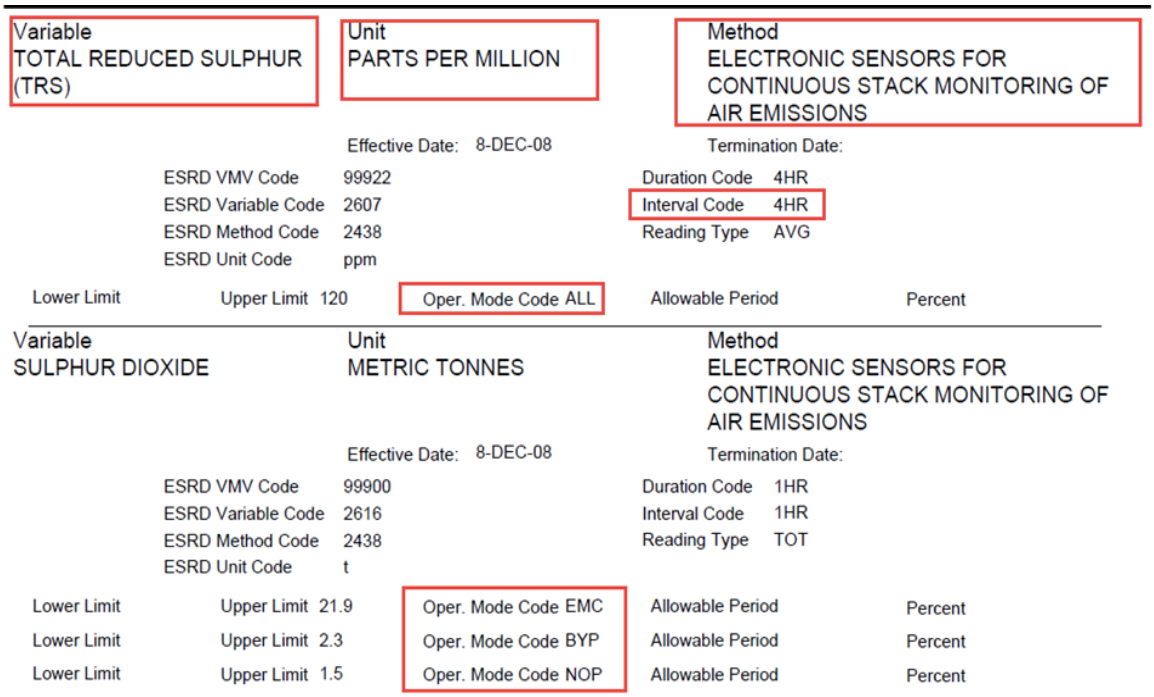
Next on the report are the codes used to report each variable and unit that is stipulated within the Approval. In the following example, Approval **195448** is required to report concentration of "Total Reduced Sulphur (TRS)" in "ppm" with a "CEM", for "Station ID No 19040." The measurements are to be reported in 4hr average intervals and the limit of 120 ppm to be applied for all operational mode codes.



If your facility has multiple limits for a parameter, the assigned **Operational Mode Codes** must be reported to reflect the status of the source operations. The example above for Sulphur Dioxide, Tonnes, has three different operational modes stated:

EMC (Emergency Conditions) the operating limit is 21.9 t of SO2 per one hour
BYP (Bypass) the operating limit is 2.3 t of SO2 per one hour
NOP (Normal Operations) the operating limit is 1.5 t of SO2 per one hour

AEP's system accesses the **Operational Mode Code** to determine the state of facility operations then determines the appropriate limit to be assigned to the sample value. It is therefore mandatory that the facilities ensure that the code that best represents the status for the facility be reported.

For Total Reduced Sulphur, ppm, the Operational Mode Code "**ALL"** has been assigned, this is a default code that tells the AEP system to apply the limit assigned for **any Operational Mode Code** submitted.

Tables 1 through 10 included at the end of this manual describe the Codes for station status, analyzer code (Null data code), Operational Mode Code, etc. These are generic codes and are designed to best reflect many different scenarios. These are the **only codes** that the AEP system will accept and are therefore **mandatory.** Your facility's Quality Assurance Plan (QAP) must contain a description of how these codes reflect the use at your facility.

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"ALL" is not to be used in the file submission; it is only used internally by AEP as a default code.

2.2 Question and Answer

Question: What CEM reporting requirements will I need to submit?

Answer: Your CEM reporting requirements are Approval dependent and the reporting format will be accessible to you by contacting (via email) the CEM User Coordinator and requesting "The Codes for Electronic Reporting".

Once you obtain this report, please review it to ensure it correctly reflects the CEM parameter reporting requirements as identified in the Air, Monitoring, and Reporting section(s) of your EPEA Approval. It is the Approval Holder's (Authorized Users) responsibility to ensure all parameters are reported correctly.

Question: My Approval conditions have changed, do I need to contact the CEM User Coordinator or just send in the new parameters?

Answer: Your facility CEM reporting requirements will need to be reflected in the AEP system so it is necessary to contact the CEM User Coordinator to ensure the CEM reporting requirements are updated. Once the updates are entered into the system, the CEM User Coordinator will email the revised Codes for Electronic Reporting for your review. If you observe any discrepancies you must contact the CEM User Coordinator immediately to ensure the discrepancies are addressed.

Question: Do I have to use the codes in the table or can we use the ones provided by our supplier/consultant?

Answer: Only the codes provided in tables 1-10 can be used to submit data to AEP. It is the facilities responsibility to use the codes that best reflect all the operational conditions. The codes used from the Tables in this manual must be included in the facility QAP plan with a description of how they apply to the data.

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3. Monitoring Data File Specifications

3.1 File Name Specification

The file name format is necessary to differentiate files from one another within the internal FTP folder. The .mdf extension is necessary to indicate that this file contains CEM monitoring data and should be automatically loaded into the system.

3.1.1 File Name

EPEA Approval Id – Monitoring Year and Month – Sequence Number.mdf

Format 99999999-YYYYMM-99.mdf

00195448-201004-03.mdf

3.1.2 EPEA Approval ID

The EPEA Approval Id in the file name is an 8-digit number, which must be padded with zeros. The Approval excludes the renewal sequence and amendment sequence numbers.

Approval Format: 00195448-02-00
Approval Id-renewal-amendment

3.1.3 Monitoring Year and Month

This pertains to the calendar month and year that the data was measured.

3.1.4 Sequence

This field pertains to the number of times a file has been submitted/amended (In this example, the file has been submitted 3 times for a specific month - 00195448-201004-03.mdf). For the purpose of trouble shooting a file it is important to sequence your file as amendments are made.

3.1.5 File Name extension

.mdf

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3.2 File Format Specification

- All fields end with a pipe character "|" unless otherwise specified.
- When a field is unused a pipe character must be entered at the field's position in the record **without spaces**.
- All fields **must be provided** unless they are marked as 'optional' or 'n/a'.
- Fields not used cannot be populated with spaces.

3.2.1 File Header Record (HH)

If you have an error in the Header Record, your file will **not** be processed, nor will your facility receive an email. An email will be forwarded to the CEM User Coordinator making them aware of the situation. The CEM User Coordinator will forward the information onto the email address that is identified in the Header Record.

File Header Record (HH) **This record must be present in the file, and it must contain 6 pipe characters or the file will be rejected.** **Only *one* HH per file submission.**			
Field No	**Field Name**	**Data Type, Length**	**Description**
1	Transaction Type	Char, 2	Must = 'HH' (Header)
2	Approval Id	Numeric, 8	Approval Id 8 characters are required, therefore padding is required. *Example* = 00000001
3	Submitted Date	Numeric, 8	YYYYMMDD format; File submission date, this date is not used to determine if the report is submitted by the due date. The system time stamp at the time you signoff the data on the Industrial Sign-off web page will be deemed the date the data is received and will be used in determining if the report was submitted on time.
4	Email Address	Char, max 99	Email address to be used for file receipt / processing acknowledgement. More than one email address can be submitted, use a ';' **(semi colon)** to separate. **Maintenance of these email addresses is done at the facility**.
5	Data Month	Date	YYYYMM format, the year and month that the data represents, must be the same calendar month throughout the report.
6	File Name	Char, 20	Submitted File name Format: 99999999-YYYYMM-99 This filename must match exactly the filename you submit through the FTP site **excluding the .mdf.**
7	Monthly Review Comments	Char, max 2000	This space is provided to allow the submitter to include any information that pertains to the operations at the facility during the month. * No pipe character required after this field*

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Following is an example of a header record:

HH|00195448|20100401|Fred@live.ca;Ed@hotmail.com|201003|00195448-201003-03|report comment

3.2.2 Station Status Record (SS)

Station Status Record (SS) **At least one SS record is required for every *reportable* station ID that your facility is required to provide CEM data for. It must contain 6 pipe characters and must be included in every report submitted, even if data is not being submitted during the month for that Station ID**			
Field No	**Field Name**	**Data Type, Length**	**Description**
1	Transaction Type	Char, 2	Must = 'SS' Station Status
2	Action Code	Char, 1	Must = 'I', Insert (this is a capital 'i')
3	Station ID	Numeric, 8	Station Id, AEP Data Management will provide a unique Station ID for each CEM location and will be specified in the *Codes for Electronic Reporting* specific to your facility.
4	Effective Date	Numeric, 8	YYYYMMDD format; Status effective date
5	Effective Time	Numeric, 4	HHMM (24-hr clock) **Start of the interval –Mountain Standard Time (MST)**
6	Station Status Code	Char, 3	Station Status are specified in this manual, see Table 1 for a list of mandatory station status codes.
7	Status Comment	Char, max 255	Status Comment ***** No pipe character required after the field*

The following is an example of a set of Station Status Records:

SS|I|19040|20100301|0500|NOP|
SS|I|19040|20100301|0615|UOL|
SS|I|19040|20100302|0007|NOP|
SS|I|19040|20100302|0300|TRN|The facility was taken down for annual turnaround

SS|I|19040|20100301|0500|NOP|

- Indicates that station 19040 was operating normally starting on Mar 01/2010 at 0500 hours.

SS|I|19040|20100301|0615|UOL|

- Indicates that the station was off line on Mar 01/2010 at 0615. Once a SS indicates the station is off line, the AEP system will not accept readings until a station status line is submitted to indicate that the system is back online. Because the process was up for a partial hour, the AEP system will be expecting a RD record for the partial hour beginning 0600. If quality assured data is available for the partial hour it must be reported, see RD records for reporting format. For mass emissions, when quality assured data is not available, it will need to be estimated based on a missing mass data method (Section 10 or 11 of this manual or another approved method documented with the CEM QAP).

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SS|I|19040|20100302|0007|NOP|

- Indicates that the system was operational within the interval (in this case within clock hour beginning 0000); therefore at 0000 hours on Mar 02/2010, the system will be expecting RD records from the time indicated until the next SS record that indicates the sources was not operational.

SS|I|19040|20100302|0300|TRN| The facility was taken down for annual turnaround

- Indicates to the system that the station went down for turnaround at 0300 on Mar 2/2010. No data will be expected from 0300 on Mar 2/2010 until the status of the station is returned to NOP.

The next time the station is operational may occur in the next month. In the example above, if the station starts up on April 4 at 0535; no RD records would be submitted for this station until April. The first SS line for this station would be as follows and would only be included in the following April submission.

SS|I|19040|20100404|0535|NOP|

- The AEP system will begin assessing the file for RD records starting April 4 at 0500.

3.2.3 Hourly, Daily, and Sub Hourly Record Detail (RD)

Note: For any intervals that the SS indicates that the station was operational, a corresponding RD record is required; this includes partial hours/intervals.

Example: if the SS indicates it was operational at 1:05, a RD record is to be submitted for any intervals that includes 1:05 (i.e. 6min, 1hr, 4hr…).

Hourly, Daily, and Sub Hourly Record Data (RD) **Must contain 22 pipe characters**			
Field No	**Field Name**	**Data Type, Length**	**Description**
1	Transaction Type	Char, 2	Must = ‘RD’ (Record Detail Type)
2	Action Code	Char, 1	Must = ‘I’, Insert (this is a capital ‘i’)
3	Station ID	Numeric, 8	Station Id this number must match the number in the corresponding SS line and is specified in your specific facility *Codes for Electronic Reporting*.
4	Parameter	Numeric, 4	Variable codes are specified in your *Codes for Electronic Reporting*; see Table 2 in this manual for a list of mandatory Variable Codes.
5	POC	Numeric, 1	Parameter Occurrence Code; always = 1
6	Sample Duration	Char, 8	Duration codes are specified in your *Codes for Electronic Reporting*; see Table 3 in this manual for a list of mandatory Interval/Duration codes.
7	Unit	Char, max 10	Unit codes are specified in your *Codes for Electronic Reporting*, see Table 4 in this manual for a list of mandatory Unit codes.
8	Method	Numeric, 4	Method codes are specified in your *Codes for Electronic Reporting*; see Table 5 in this manual for a list of mandatory Method codes.

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9	Date	Numeric, 8	YYYYMMDD format; measurement date, must be based on a calendar day.
10	Start Time	Numeric, 4	HHMM format; measurement start time, reported at hour beginning – must be reported in MST. (24-hr clock)
11	Sample Value	Numeric, 10 digits with up to 5 decimal places	Measurement value; With the exception of mass values this field may be left blank if valid, quality assured data is unavailable and a Null data Code is provided in field 12. All missing mass values must be either calculated or generated from another quality assured source (see Section 10 and 11).
12	Null Data Code/Analyzer comment	Char, 3	A code is required if a measurement value is blank or if any of the codes apply. See Table 6 in this manual for a list of mandatory Codes.
13	Interval	Char, 8	Sample Interval codes are specified in your *Codes for Electronic Reporting*; see Table 3 in this manual for a list of mandatory Interval codes.
14	VMV code (Qualifier-1)	Numeric, 6	VMV code (Valid Method Variable) are specified in your *Codes for Electronic Reporting*, see Table 2 in this manual for a list of mandatory VMV codes.
15	Reading Type (Qualifier-2)	Char, 3	Reading Type codes are specified in your *Codes for Electronic Reporting*; see Table 7 in this manual for a list of mandatory Reading Types.
16	Qualifier-3	Char, 1	Value Attribute codes are ***optional***, values 'L','G','T' see Table 9 in this manual for a list of mandatory codes. *(CURRENTLY NOT USED)*
17	Qualifier-4	Numeric, 10 digits with up to 5 decimal places	Uncertainty; ***optional*** *(CURRENTLY NOT USED)*
18	Qualifier-5	Char, max 70	Reading Comment; are ***mandatory,*** an explanation is required for any situation outside of normal operations, this space is available to provide information related to the reading.
19	Operational Mode Code (Qualifier-6)	Char, 3	Operational Mode codes; are ***mandatory, those Operational Mode codes*** specified in your *Codes for Electronic Reporting* must be used to reflect the status of your facility; see Table 8 in this manual for a list of mandatory Operational Mode codes.
20	Qualifier-7	Number, 6	ERC Call Reference Number. This number is provided to you from Emergency Response Center (ERC) when an approval condition contravention is reported.
21	Qualifier-8 Data Quality Flag	Char, 3	See Table 10 in this manual for a list of mandatory Data Quality Flags and definitions; - MDA (Missing Data) - NQA (Non Quality Assured Data) - QAD (Quality Assured Data) - OTP (Operational Test Period) - CTP (Conditioning Test Period) - PCP (Precertification Period)
22	Qualifier-9		n/a
23	Qualifier-10		n/a ***** No pipe character required after the field*

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The following is an example of a set of Data Records (RD):

RD|I|19040|2616|1|1HR|t|2438|20100301|0000|23.00||1HR|99900|TOT||||EMC||||
RD|I|19040|2616|1|1HR|t|2438|20100301|0100|3.00||1HR|99900|TOT||||NOP||||
RD|I|19040|2616|1|1HR|t|2438|20100301|0200|2.00|AML|1HR|99900|TOT|||method 1|NOP||MDA||
RD|I|19040|2616|1|1HR|t|2438|20100301|0300|31.00||1HR|99900|TOT||||NOP|275257|||
RD|I|19040|2616|1|1HR|t|2438|20100301|0400|1.00|CAL|1HR|99900|TOT||||NOP||||

3.2.4 File Trailer Record (EOF)

Each file submitted must have the file trailer Record, to indicate to the system that the file is complete.

File Trailer Record (EOF)		
Field Name	**Data Type**	**Description**
Transaction Type	Char, 3	Must = 'EOF' (End of File) **No pipe character** There must be a hard return after EOF

EOF

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Example of File Format for AAAA Test System for the month of March 2010

The following is an example of what a file would look like for the reporting of 1 HR SO_2 total emission tonnage data for station 19040 and 1 HR NO_X total emission data measured in kg for the second station 12354. This is only a partial month example with only 1 variable for each station being reported. It is only meant to give you an example of the general format of the file.

```
HH|00195448|20100403|Fred@live.ca|201003|00195448-201003-02|this is the report for Mar 2010
SS|I|19040|20100301|0000|NOP|
SS|I|19040|20100301|0800|UOL|
SS|I|19040|20100302|1100|NOP|
SS|I|19040|20100302|1206|TRN|

RD|I|19040|2616|1|1HR|t|2438|20100301|0000|33.00||1HR|99900|TOT||||NOP||||
RD|I|19040|2616|1|1HR|t|2438|20100301|0100|30.00||1HR|99900|TOT||||NOP||||
RD|I|19040|2616|1|1HR|t|2438|20100301|0200|28.00||1HR|99900|TOT||||NOP||||
RD|I|19040|2616|1|1HR|t|2438|20100301|0300|19.00||1HR|99900|TOT||||NOP||||
RD|I|19040|2616|1|1HR|t|2438|20100301|0400|10.21|CAL|1HR|99900|TOT||||NOP||||
RD|I|19040|2616|1|1HR|t|2438|20100301|0500|30.00||1HR|99900|TOT||||NOP||||
RD|I|19040|2616|1|1HR|t|2438|20100301|0600|38.00||1HR|99900|TOT||||NOP||||
RD|I|19040|2616|1|1HR|t|2438|20100301|0700|28.11||1HR|99900|TOT||||SGD||||
RD|I|19040|2616|1|1HR|t|2438|20100302|1100|33.14||1HR|99900|TOT||||STU||||
RD|I|19040|2616|1|1HR|t|2438|20100302|1200|19.17|PAR|1HR|99900|TOT|||partial hour|NOP||MDA||
RD|I|19040|2592|1|1MON|%|2525|20100301|0000|95||1MON |99933|CML||||NOP||||

SS|I|12354|20100301|0050|NOP|
SS|I|12354|20100301|1000|TRN|

RD|I|12354|2615|1|1HR|kg|2438|20100301|0000|3.00|PAR|1HR|99904|TOT|||Start up of facility was at 0050|STU||||
RD|I|12354|2615|1|1HR|kg|2438|20100301|0100|30.00||1HR|99904|TOT||||NOP||||
RD|I|12354|2615|1|1HR|kg|2438|20100301|0200|2.00||1HR|99904|TOT||||NOP||||
RD|I|12354|2615|1|1HR|kg|2438|20100301|0300|19.00||1HR|99904|TOT||||NOP||||
RD|I|12354|2615|1|1HR|kg|2438|20100301|0400|20.00|CAL|1HR|99904|TOT||||NOP||||
RD|I|12354|2615|1|1HR|kg|2438|20100301|0500|30.00||1HR|99904|TOT||||NOP||||
RD|I|12354|2615|1|1HR|kg|2438|20100301|0600|38.00||1HR|99904|TOT||||NOP||||
RD|I|12354|2615|1|1HR|kg|2438|20100301|0700|42.00||1HR|99904|TOT||||NOP||||
RD|I|12354|2615|1|1HR|kg|2438|20100301|0800|44.00||1HR|99904|TOT||||NOP||||
RD|I|12354|2615|1|1HR|kg|2438|20100301|0900|77.00||1HR|99904|TOT||||NOP|951760|||
RD|I|12354|2602|1|1MON|%|2525|20100301|0000|95||1MON |99934|CML||||NOP||||
EOF
```

These records pertain to the status of the first station, and determine what will be required to be submitted in the RD records.

These records represent the variable being reported, each row pertains to a single reading (i.e. if 1hr data was being reported and the system ran the complete month of March there would be 744 RD lines for each variable that was to be monitored and reported hourly.)

The following records pertain to the second regulated source Station 12354

This record pertains to the % time available operation of the analyzer. Each variable that is monitored will be required to meet the 90% operational requirement as set out in the Continuous Emission Monitoring System Code (CEMS Code)

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3.3 Question and Answer

Question: Do I need to follow the File format exactly?

Answer: Yes, before the data is loaded into the staging tables, prior to sign off, it will be put through a number of verification and validation steps. The FTP file will need to match both the file specifications and the codes as described in your Codes for Electronic Reporting exactly for the system to accept the data.

Question: How do I change the email address where the system sends the confirmation or error messages to?

Answer: The email address is controlled by the header record (HH); therefore it is controlled at the facility. Consult your user software user manual for instructions or contact your software provider.

HH|195448|20101129|Fred@live.ca;Ed@hotmail.com|201010|00195448-201010-03|

Question: What is the difference between an Interval and Duration?

Answer: "Interval" is the time period between Measurements,
"Duration" (Sample Duration), indicates the time period over which the sample is taken (or averaging period).

Question: What if my facility is operational for a partial hour?

Answer: **Data reporting is required for all times that the source is emitting, including partial hours**.

Where a system has the capability of measuring/reporting data continuously, all valid data points must be used in the calculation of the hourly or interval reading.
The fifteen -minute data block was originally specified to accommodate time-share monitoring systems and data acquisition systems with limited memory.

SS|I|12354|20100301|0050|NOP|
RD|I|12354|2615|1|1HR|kg|2438|20100301|0000|3.00|PAR|1HR|99904|TOT|||Start up of facility was at 0050|STU||||

*In the example above, the SS line for station 12354 for 20100301 at 0050 indicated that the station was operational at 0050, this indicates that the facility would be emitting for 10 minutes of this clock hour. This hour could still be considered a valid hour if the 10 minutes of operating time was collected using valid data. These emissions must be reported.

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RD|I|12354|2615|1|1HR|kg|2438|20100301|0400|20.00|CAL|1HR|99904|TOT||||NOP|||

** In the example above during the calibration, the facility was emitting, therefore a value must be reported. (This example is for a calibration that met the CEMS Code provision data points representing 30 minutes of data; pg. 9 of the AB CEMS Code, no code is required in Qualifier 8. If the calibration takes longer than what is prescribed in the CEMS code then the Qualifier 8 NQA needs to be included).

RD|I|12354|2615|1|1HR|kg|2438|20100301|0400|20.00|CGA|1HR|99904|TOT|||Method one used to calculate mass|NOP||NQA||

*** In the example above during a CGA, the facility was emitting therefore a mass value must be reported. The CEMS Code section 2.5.3 states that "Time periods necessary for CEMS calibration, quality control checks, or back purging shall not be considered as downtime when calculating Ta". Therefore the code NQA must be used to reflect this scenario. Method one may be used to calculate the mass value (Section 10.1).

Question: Do we use Mountain Standard Time, How do I handle the time change?

Answer: The preference is that all data is to be submitted in Mountain Standard Time, and is a requirement of the Air Monitoring Directive (AMD 1989, as amended).

Question: Historically our facility has always applied the time change; can we continue to apply the change to the data?

Answer: AEP/AER realizes some facilities, based on historic practices are adjusting the time stamp. During a time change, (spring and fall) if your facility adjusts for these changes in time, this must be reflected in the data:

a. During the spring, when the clock moves ahead one hour, this will result in the one hour of data not being monitored. The adjusting hour can be calculated using Method 1 for missing data (Section 10); with the Null data code of TAD (time adjustment) entered in field 12 and the data quality flag of NQA in field 21. This is required for only the hour being adjusted (see below).

RD|I|12354|2615|1|1HR|kg|2438|20100314|0100|18.00||1HR|99904|TOT||||NOP||||
RD|I|12354|2615|1|1HR|kg|2438|20100314|0200|18.50|TAD|1HR|99904|TOT|||Time adjustment|NOP||||
RD|I|12354|2615|1|1HR|kg|2438|20100314|0300|19.00||1HR|99904|TOT||||NOP||||

b. During the fall, when the clock moves back one hour, the highest of the two hours must be reported with the Null data code of TAD entered. If the parameter being reported has a minimum limit (for example temperature), the lower value must be reported. Provide in the comments field the sample value not reported in field 11.

RD|I|12354|2615|1|1HR|kg|2438|20101107|0200|18.00|TAD|1HR|99904|TOT|||the lower value was 17.00 |NOP||||

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Year	DST Begins at 2 a.m. (second Sunday in March)	DST Ends at 2 a.m. (first Sunday in November)
2014	March 9	November 2
2015	March 8	November 1
2016	March 13	November 6
2017	March 12	November 5
2018	March 11	November 4

- Starts: Second Sunday in March
- Ends: First Sunday in November
- Time: 2 am local time

****NOTE**** **Please keep in mind that if an exceedance is reported during a time change it is essential that the time of the incidents reported verbally, line up with the hours reported electronically. In the event that an approval limit is exceeded over the time change, or if there is a possibility of the limit being exceeded, the time change must be delayed until the limits are no longer exceeded.**

Question: When I submit my file the email response is being forwarded to someone who no longer works at the facility, how do I change the address?

Answer: The maintenance of email addresses is done at the facility; AEP/AER has no control over these. Please reference your system manual. To ensure your emails are going to the correct person, check all email addresses entered in the header record (HH) of your monthly .mdf report.

Question: When I notify AEP/AER of an alleged Incident, I'm given a reference number. How do I report this in the monthly electronic report?

Answer: The RD record has been set up to accommodate this number, Qualifier 7 (field 20). In the example below the reference number is 951760. Each reading that has exceeded an approval limit during operational time, including hours of "purge" or "cool down" for combustion related sources, must have a reference number added to the corresponding RD.

RD|I|12354|2615|1|1HR|kg|2438|20100301|0900|37.00||1HR|99904|TOT||||NOP|951760|||
RD|I|12354|2615|1|1HR|kg|2438|20100301|1000|36.20||1HR|99904|TOT||||NOP|951760|||
RD|I|12354|2615|1|1HR|kg|2438|20100301|1100|37.54||1HR|99904|TOT||||NOP|951760|||

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****Note**** When reporting an approval exceedance it is very important to include the following when reporting both verbally and in the written follow-up (7-day letter):

1. Approval Number
2. Station ID
3. Start and end time of the incident
4. Parameter and units
5. Sample Value

Question: Only one Operational Mode code from the Table 8 can be reported against each interval, what if more than one code can reflect the condition during the interval?

Answer: The code that best represents the interval should be reported, this is true for any of the codes (i.e. Null data code, Operational mode code and Qualifier 8). For example if a facility was operational for 15 minutes and shutting down for 45, the hour would reflect the shutting down operational mode code. It is the facilities responsibility to choose the codes that best represent the reading being reported.

4. Overview of flow of data

The schematic on the following page represents the flow of data into and through the AEP Data management system.

- The left side of the schematic represents the flow of the data prior to the data entering into the system.
- The right side represents the flow of the data through the automated compliance system.

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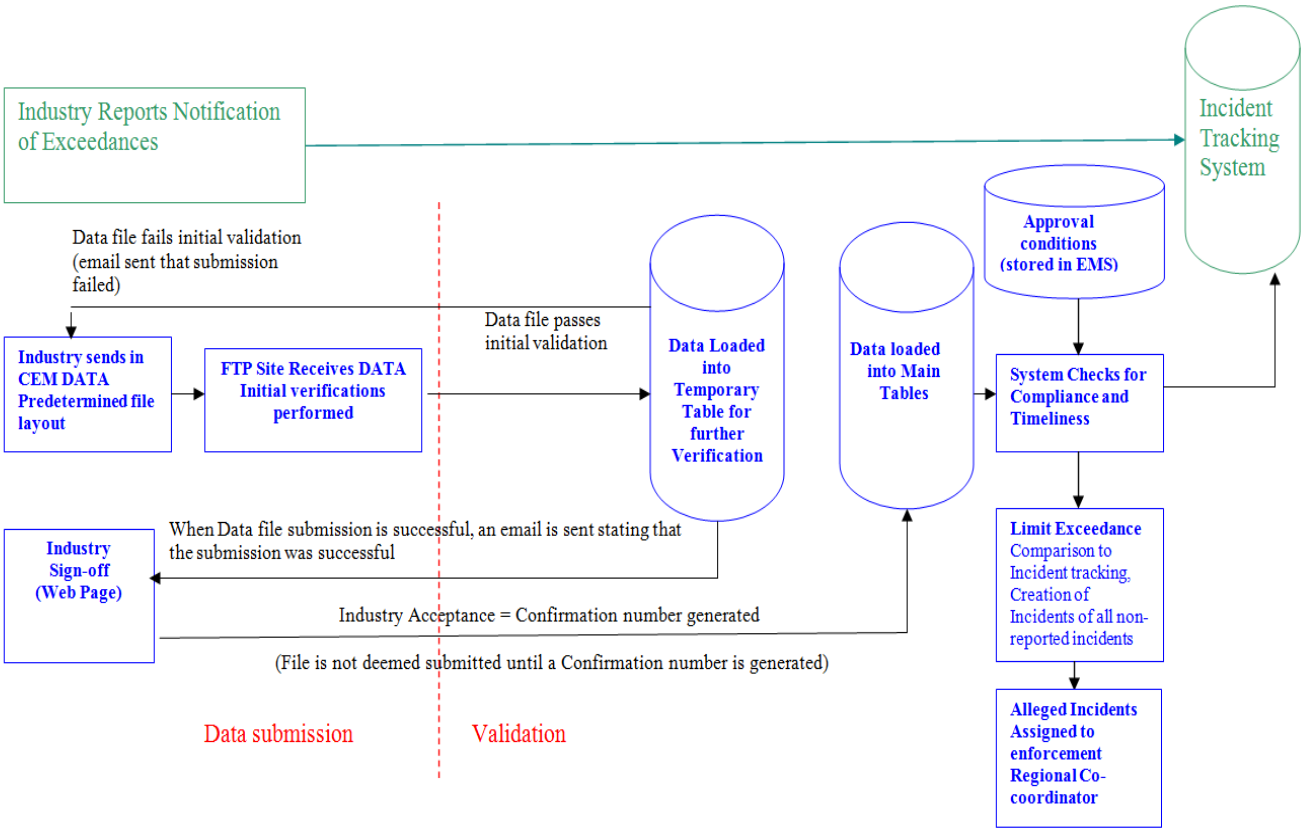
Data Flow


Industry Reports Notification of Exceedances
Incident Tracking System
Data file fails initial validation (email sent that submission failed)
Data file passes initial validation
Approval conditions (stored in EMS)
Industry sends in CEM DATA Predetermined file layout
FTP Site Receives DATA Initial verifications performed
Data Loaded into Temporary Table for further Verification
Data loaded into Main Tables
System Checks for Compliance and Timeliness
When Data file submission is successful, an email is sent stating that the submission was successful
Industry Sign-off (Web Page)
Limit Exceedance Comparison to Incident tracking, Creation of Incidents of all non-reported incidents
Industry Acceptance = Confirmation number generated
(File is not deemed submitted until a Confirmation number is generated)
Alleged Incidents Assigned to enforcement Regional Co-coordinator
Data submission
Validation

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5. Uploading Monitoring Data to AEP FTP site

To upload data to AEP FTP site you need to be an '*Authorized Facility*" and have a "*CEM User ID" and Password*. If you have not registered, please contact the CEM User Coordinator (via email).

5.1 Uploading Data via DOS

Upload data using FTP utility from DOS command line.
Note: letters in **bold** is what you are required to enter.

- Open a DOS command windows (from the start button)
- Change to the directory where you have your data (assuming you have your data in C:\data)
- CD \data

C:\data> ftp ftp.env.gov.ab.ca
Connected to ftp.env.gov.ab.ca.
220 -This is a AEP(Government of Alberta) server. Only authorized personnel are permitted
to access this server. Unauthorized individuals are requested to disconnect
immediately.
220
User (ftp.env.gov.ab.ca: (none)): **myusername** *(~use your **CEMUser id** ~)*
331 Please specify the password.
Password: ********** *(~actually, nothing is echoed back, hit return when done~)*
230 Login successful.
ftp> **binary**
200 Switching to Binary mode.
ftp> **prompt**
Interactive mode off.
ftp> **put *filename***
200 PORT command successful. Consider using PASV.
150 Ok to send data.
226 Transfer complete.
ftp: ### bytes sent in ### Seconds ####bytes/sec.
ftp> **quit**
221 Goodbye.
C:\data\> **exit**

NOTE: mput * will copy all the files from your c:\data to the ftp site. If you want to upload a single file;
Ftp > put filename
Where filename is the file name you want to upload i.e. Ftp >put 00195448-201009-01.mdf

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5.2 Alternative to the DOS command

Use any GUI FTP Utility (shareware or licensed) such as Ftp Pro, Cute Ftp, Absolute FTP, 1st Choice FTP, etc. Visit any shareware library site, such as Tucows, and get your favorite program.

- Tucows

****NOTE** The CEMUser Id is your facility Approval number padded to 8 characters: i.e. 00195448**

6. Email Messages

6.1 Successful Email message

If the file has been successfully submitted, an email will be forwarded to the address identified in the Header Record of the file.

Below is the example of the Header Record for Fred's March 2010 report (third submission) and the Email that would be generated if the report met all verifications.

HH|00195448|20100403|Fred@live.ca;Ed@hotmail.com|201003|00195448-201003-03|

Subject: 00195448-201003-03 SUMMARY-SUCCESS

File Name: 00195448-201003-03
Starting Run Date and Time: 03-April 2010 10:29
Approval Id: 00195448
Date Submitted: 20100403
Email Address: Fred@live.ca;Ed@hotmail.com
Detail Records Processed: 15
Station Records Processed: 4
The file: 00195448-201003-03 has successfully been processed

6.2 Unsuccessful Email message

The following is an example of a failed submission and the email that was returned to the submitter. AEP Data Management has implemented a number of different error messages to help in identifying errors within the file.

When a file does not meet any one of the predetermined verifications, an email similar to the one below would be sent to the address identified in the Header Record. A maximum of 50 errors can be processed in one submission. Depending on the complexity of errors, only one error may be assessed at the time of the submission.

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In this example, the file was uploaded to the FTP site with different filenames.

Filename ftp'd to AEP: 00195448-201003-03.mdf

Subject: ALERT!!! 00195448-201003-03 SUMMARY – FAILED

File Name: 00195448-201003-03
Starting Run Date and Time: 29-NOV-2010 10:28
Approval Id: 00195448
Date Submitted: 20101129
Email Address: Fred@live.ca; Ed@hotmail.com
Detail Records Processed: 15
Station Records Processed: 4

SUMMARY OF ERRORS IN FILE:

Error Message: (58) Header record filename in file does not match name of file
Record Number: 1
Record Image: HH|00195448|20101129| Fred@live.ca|201010|00195448-201010-03| Report for Oct2010

Note the reason the file failed was the filename (00195448-201003-03) did not match the filename in the Header Record, the file was submitted as 00195448-201010-03.

If you do not understand the error email message please contact CEM user coordinator for assistance.

At present, the system will be available to receive data files between 0700 to 2300 hours daily. The data is loaded into staging tables once an hour. Once data has been successfully uploaded there might be up to a one-hour delay before the data is available for sign-off.

To avoid not meeting your due date, it is your responsibility to ensure sufficient time is allowed to signoff data. Technical assistance is available during business hours.

6.3 Question and Answer

Question: If I submit my file on the last day of the month at 2302 is it on time?

Answer: No, the file is not deemed submitted until it is signed off on the web page and a confirmation number has been generated. The system might take approximately two hours to process your file; therefore you will need to submit your file with sufficient time to allow the file to be processed and signed off by a user with a CEMSubmit username and password on the web page.

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Question: If my facility is in shutdown from the 01-Mar-2010 at 0000 to 31-Mar-2010 2300 (no emissions) do I still need to send in my CEMS electronic report for MAR 2010?

Answer: Yes, a file still needs to be submitted with a Header Record (HH) and Station Status (SS) and it needs to be signed off on the web page to generate a confirmation number. The mdf file for the below example will only need to include a Header Record with a comment that the entire month was in shutdown and each station status needs to include appropriate station status code (Table 1).

HH|00195448|20100420|Fred@live.ca;Ed@hotmail.com|201003|00195448-201003-01| the entire facility was in shutdown for the entire month
SS|I|19040|20100301|0000|SHD
SS|I|12354|20100301|0000|SHD
EOF

Question: My file failed with one of the following messages, what do they mean?

a).

```
SUMMARY OF ERRORS IN FILE:
Error Message: (46) The measurement data already exists in T
```

Answer: This message indicates that there was a previous successful submission of the file that has not been signed off. Go to the Industrial signoff and delete the file in question if you want to resubmit your file. Follow instructions outlined in section 7.5 of this manual "Deleting data that is assessed as not valid to submit"

b).

```
SUMMARY OF ERRORS IN FILE:
Error Message: (214) Cannot process file. File already loaded
```

Answer: This message indicates that there was a previous successful submission of the file and that the file has been signed off. Follow instructions outlined in section 9 of this manual "Back Out of Previously Submitted CEMS Data"

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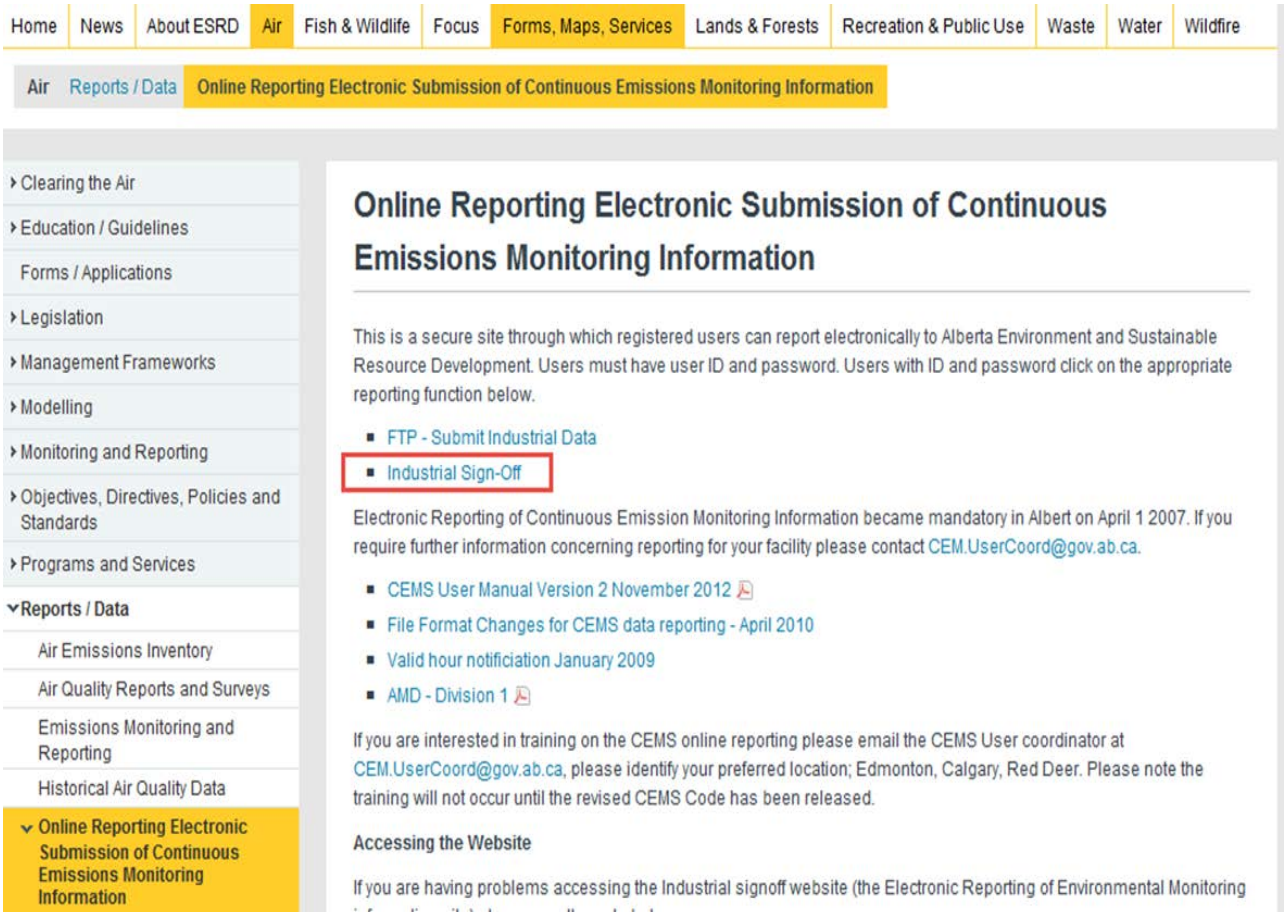
7. Data Sign-off

7.1 Getting Started

Log on to the Internet and enter:

- http://aep.alberta.ca/air/reports-data/online-reporting-electronic-submission-of-continuous-emissions-monitoring-information/default.aspx

This web page allows you access to the secure Electronic Industrial Sign-off form website.


Home
News
About ESRD
Air
Fish & Wildlife
Focus
Forms, Maps, Services
Lands & Forests
Recreation & Public Use
Waste
Water
Wildfire
Air
Reports / Data
Online Reporting Electronic Submission of Continuous Emissions Monitoring Information
Clearing the Air
Education / Guidelines
Forms / Applications
Legislation
Management Frameworks
Modelling
Monitoring and Reporting
Objectives, Directives, Policies and Standards
Programs and Services
Reports / Data
Air Emissions Inventory
Air Quality Reports and Surveys
Emissions Monitoring and Reporting
Historical Air Quality Data
Online Reporting Electronic Submission of Continuous Emissions Monitoring Information
Online Reporting Electronic Submission of Continuous Emissions Monitoring Information
This is a secure site through which registered users can report electronically to Alberta Environment and Sustainable Resource Development. Users must have user ID and password. Users with ID and password click on the appropriate reporting function below.
FTP - Submit Industrial Data
Industrial Sign-Off
Electronic Reporting of Continuous Emission Monitoring Information became mandatory in Albert on April 1 2007. If you require further information concerning reporting for your facility please contact CEM.UserCoord@gov.ab.ca.
CEMS User Manual Version 2 November 2012
File Format Changes for CEMS data reporting - April 2010
Valid hour notificiation January 2009
AMD - Division 1
If you are interested in training on the CEMS online reporting please email the CEMS User coordinator at CEM.UserCoord@gov.ab.ca, please identify your preferred location; Edmonton, Calgary, Red Deer. Please note the training will not occur until the revised CEMS Code has been released.
Accessing the Website
If you are having problems accessing the Industrial signoff website (the Electronic Reporting of Environmental Monitoring

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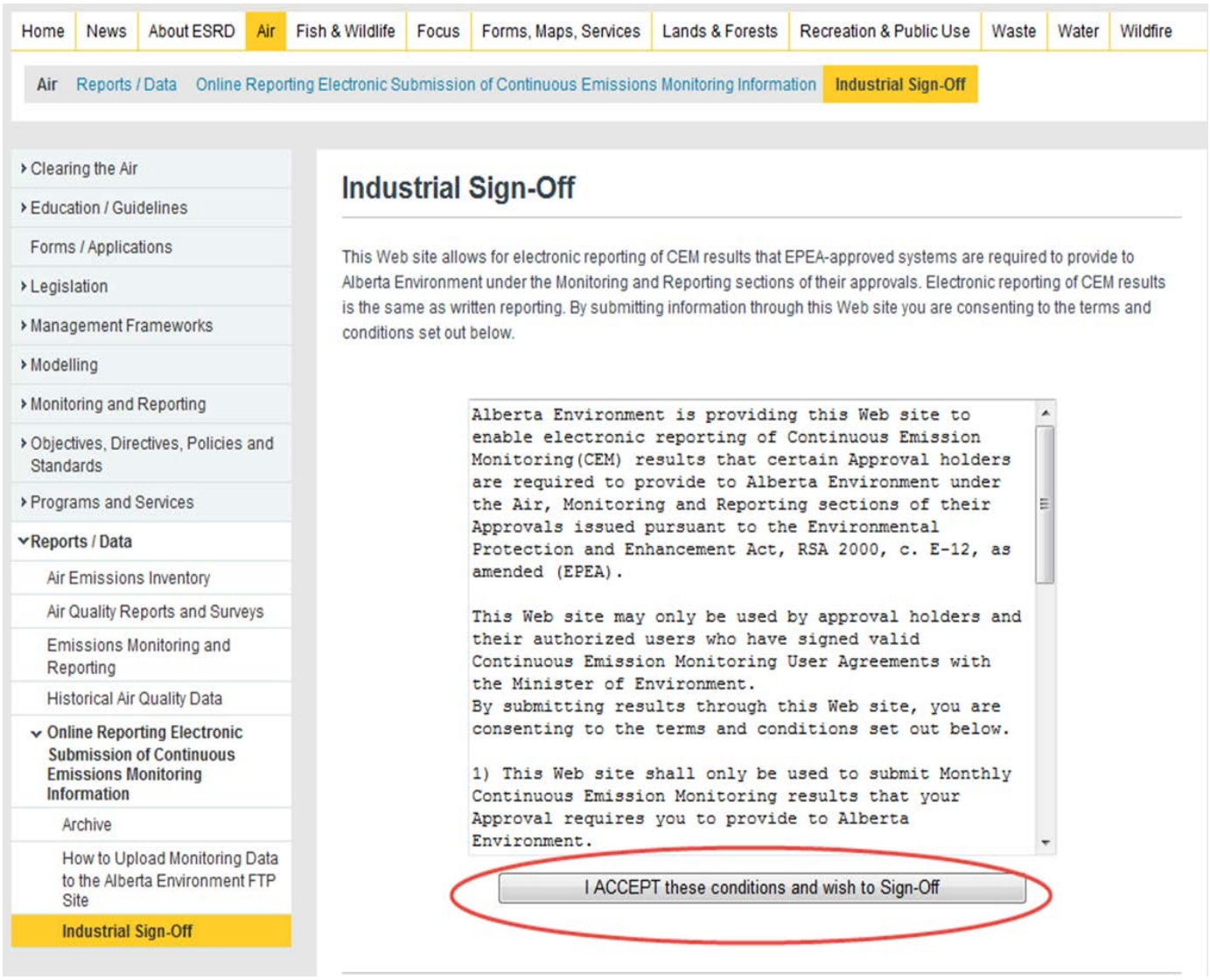
7.2 Initial Set-Up

In June 2015, the Industrial sign-off form was changed from Oracle Java interface to web based forms in Microsoft .NET.

Please read the disclaimer by scrolling down. If you agree with the disclaimer, click on the **"I ACCEPT these conditions and wish to Sign-off"** button.


Home
News
About ESRD
Air
Fish & Wildlife
Focus
Forms, Maps, Services
Lands & Forests
Recreation & Public Use
Waste
Water
Wildfire
Air
Reports / Data
Online Reporting Electronic Submission of Continuous Emissions Monitoring Information
Industrial Sign-Off
Clearing the Air
Education / Guidelines
Forms / Applications
Legislation
Management Frameworks
Modelling
Monitoring and Reporting
Objectives, Directives, Policies and Standards
Programs and Services
Reports / Data
Air Emissions Inventory
Air Quality Reports and Surveys
Emissions Monitoring and Reporting
Historical Air Quality Data
Online Reporting Electronic Submission of Continuous Emissions Monitoring Information
Archive
How to Upload Monitoring Data to the Alberta Environment FTP Site
Industrial Sign-Off
Industrial Sign-Off
This Web site allows for electronic reporting of CEM results that EPEA-approved systems are required to provide to Alberta Environment under the Monitoring and Reporting sections of their approvals. Electronic reporting of CEM results is the same as written reporting. By submitting information through this Web site you are consenting to the terms and conditions set out below.
Alberta Environment is providing this Web site to enable electronic reporting of Continuous Emission Monitoring(CEM) results that certain Approval holders are required to provide to Alberta Environment under the Air, Monitoring and Reporting sections of their Approvals issued pursuant to the Environmental Protection and Enhancement Act, RSA 2000, c. E-12, as amended (EPEA).
This Web site may only be used by approval holders and their authorized users who have signed valid Continuous Emission Monitoring User Agreements with the Minister of Environment.
By submitting results through this Web site, you are consenting to the terms and conditions set out below.
1) This Web site shall only be used to submit Monthly Continuous Emission Monitoring results that your Approval requires you to provide to Alberta Environment.
I ACCEPT these conditions and wish to Sign-Off

If you have any concerns with the disclaimer please contact the CEM User Coordinator (via email).
The disclaimer must be accepted in order to complete the Data sign-off.

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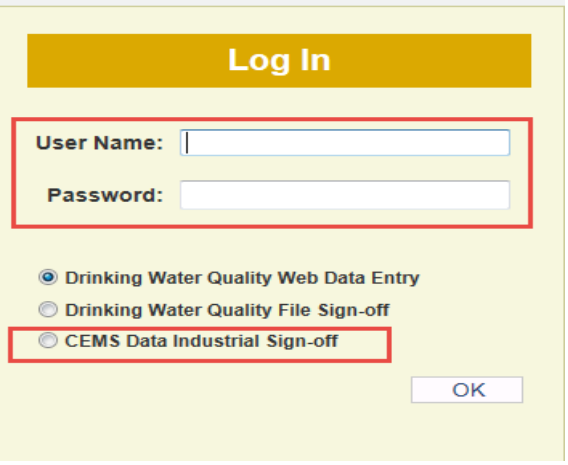
7.3 Monthly Sign-on

7.3.1 Logon

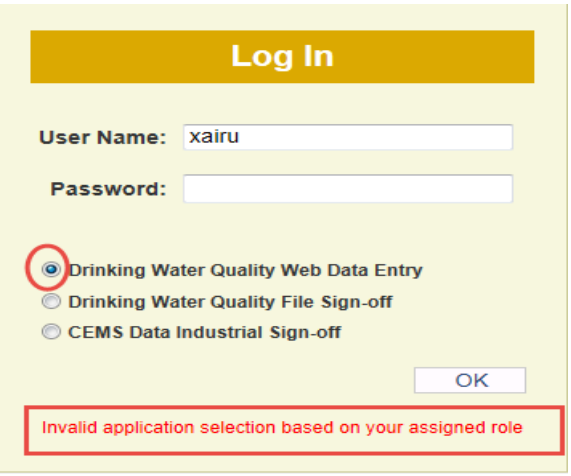
You will be prompted to enter your Username and Password. If you have not registered, please contact the CEM User Coordinator. Enter your *CEMSubmit Username* and password. Remember the Usernames are case sensitive and have been assigned to only you.

NOTE: The CEMSubmit Username will always begin with an X and end with a number.



Make sure the "CEMS Data Industrial Sign-off" is checked off. Next click the "OK" button.

If you forget to check off "CEMS Data Industrial Sign-off" and you do not permissions for Drinking Water on-line submissions, the following error will appear "Invalid application selection based on your assigned role". Please re-enter your User Name and password and check off "CEMS Data Industrial Sign-off" and click "OK".



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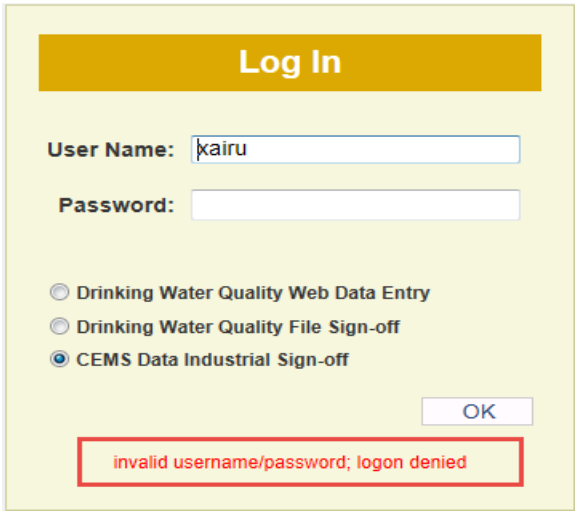
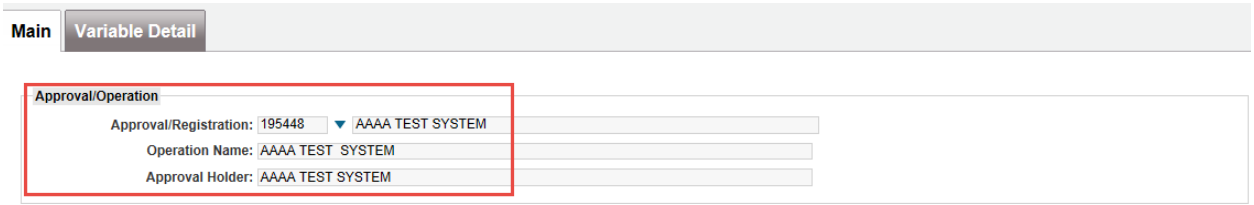
If you enter wrong user name or password, the following error will appear “Invalid username/password; logon denied”. Please re-enter your User Name and password and check off “CEMS Data Industrial Sign-off” and click “OK”.



7.4 Verifing the data submission

7.4.1 Main page

Once connected, the first box identifies the Approval holder for which the information pertains to. You will only be able to view the data for the Approval assigned to your **CEMSubmit Username**. If you only have one Approval assigned to your username the “Main” screen with the Approval/Operation information and the data loaded will show up right away.



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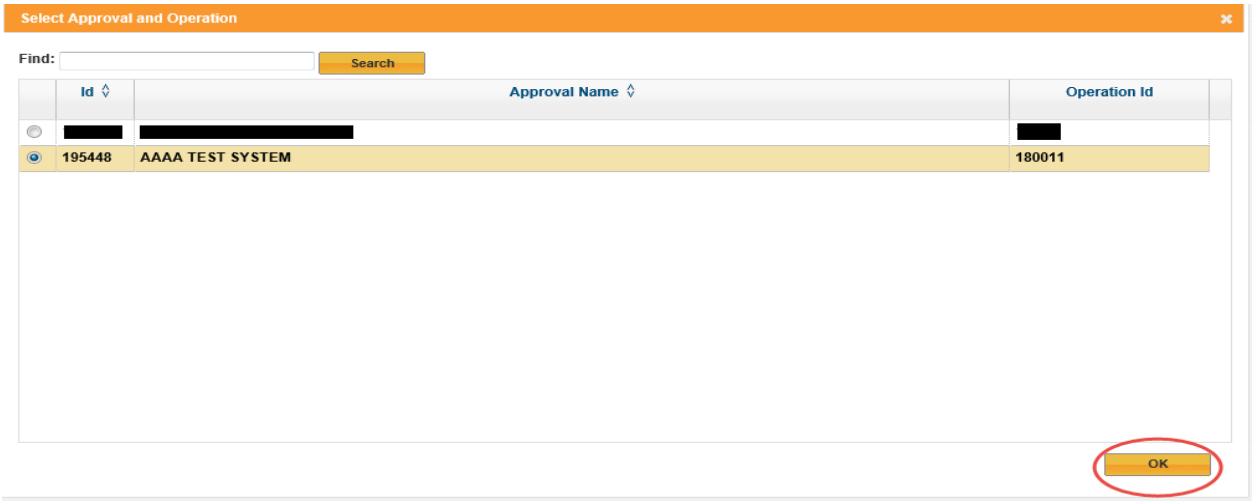
However, in some situations an external user may have more than one facility assigned to their **CEMSubmit Username.** If you are responsible for more than one facility a pop up box will appear when you first log in where you can sort through the Approvals that are assigned to your username. Select the Approval that you want to submit the data for and click "OK". This will take you to the "Main" Screen as described above.



7.4.2 Stations

The second section of the report is the section titled ***Stations***.

Select the report you will be verifying. In the example below, AAAA Test System has successfully uploaded 2 months of data for the months of February and March 2015. **Only one month of data can be signed off at a time**.

Click on the month you want to submit. The selection will be highlighted in yellow.

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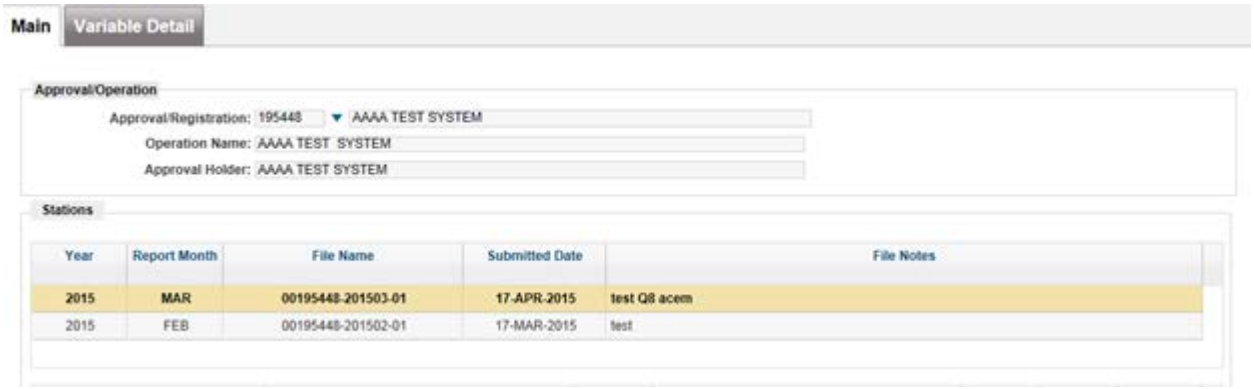
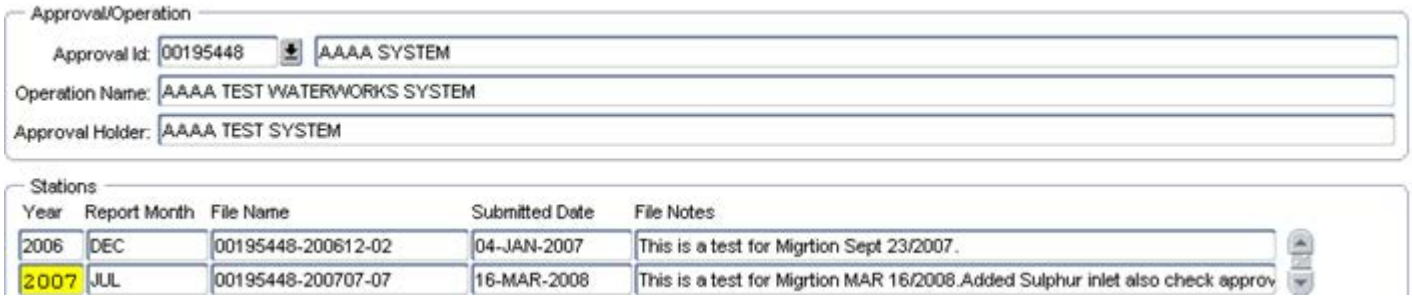
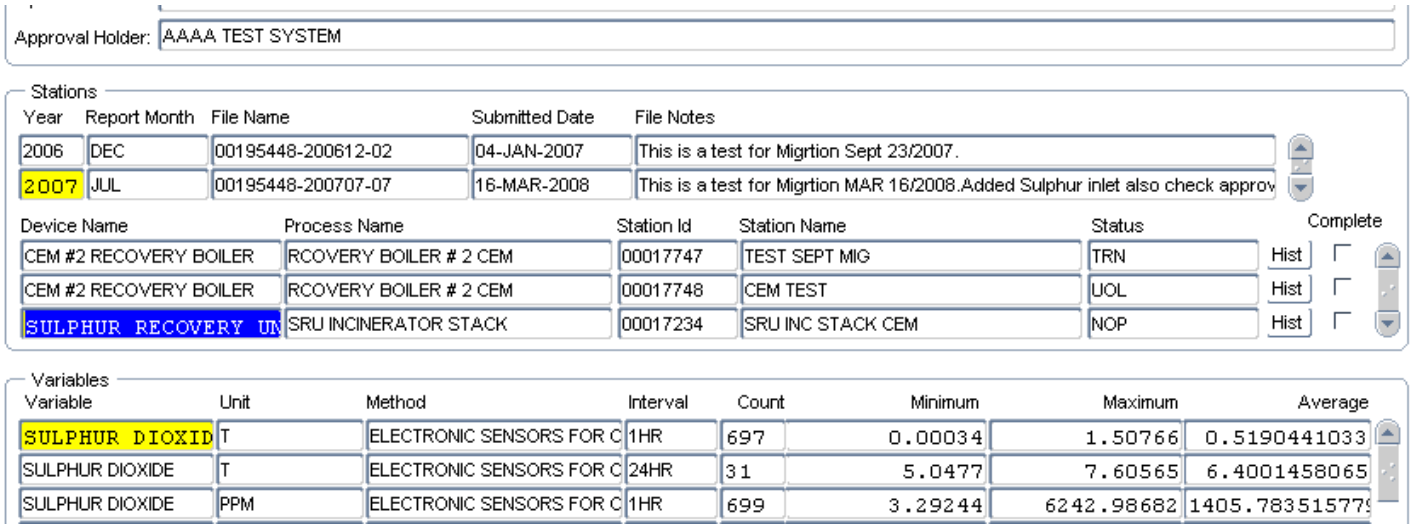



Approval/Operation
Approval Id: 00195448 AAAA SYSTEM
Operation Name: AAAA TEST WATERWORKS SYSTEM
Approval Holder: AAAA TEST SYSTEM
Stations
Year Report Month File Name Submitted Date File Notes
2006 DEC 00195448-200612-02 04-JAN-2007 This is a test for Migrtion Sept 23/2007.
2007 JUL 00195448-200707-07 16-MAR-2008 This is a test for Migrtion MAR 16/2008.Added Sulphur inlet also check approv

Everything posted in the *"**Device**"* and *"**Variable**"* section will pertain to the report selected in the previous section.

If the file notes/comments are not fully displaying, you can double click on the box to fully display the comments.


Approval Holder: AAAA TEST SYSTEM
Stations
Year Report Month File Name Submitted Date File Notes
2006 DEC 00195448-200612-02 04-JAN-2007 This is a test for Migrtion Sept 23/2007.
2007 JUL 00195448-200707-07 16-MAR-2008 This is a test for Migrtion MAR 16/2008.Added Sulphur inlet also check approv
Device Name Process Name Station Id Station Name Status Complete
CEM #2 RECOVERY BOILER RCOVERY BOILER # 2 CEM 00017747 TEST SEPT MIG TRN Hist
CEM #2 RECOVERY BOILER RCOVERY BOILER # 2 CEM 00017748 CEM TEST UOL Hist
SULPHUR RECOVERY UN SRU INCINERATOR STACK 00017234 SRU INC STACK CEM NOP Hist

Variables
Variable Unit Method Interval Count Minimum Maximum Average
SULPHUR DIOXID T ELECTRONIC SENSORS FOR C 1HR 697 0.00034 1.50766 0.5190441033
SULPHUR DIOXIDE T ELECTRONIC SENSORS FOR C 24HR 31 5.0477 7.60565 6.4001458065
SULPHUR DIOXIDE PPM ELECTRONIC SENSORS FOR C 1HR 699 3.29244 6242.98682 1405.78351577

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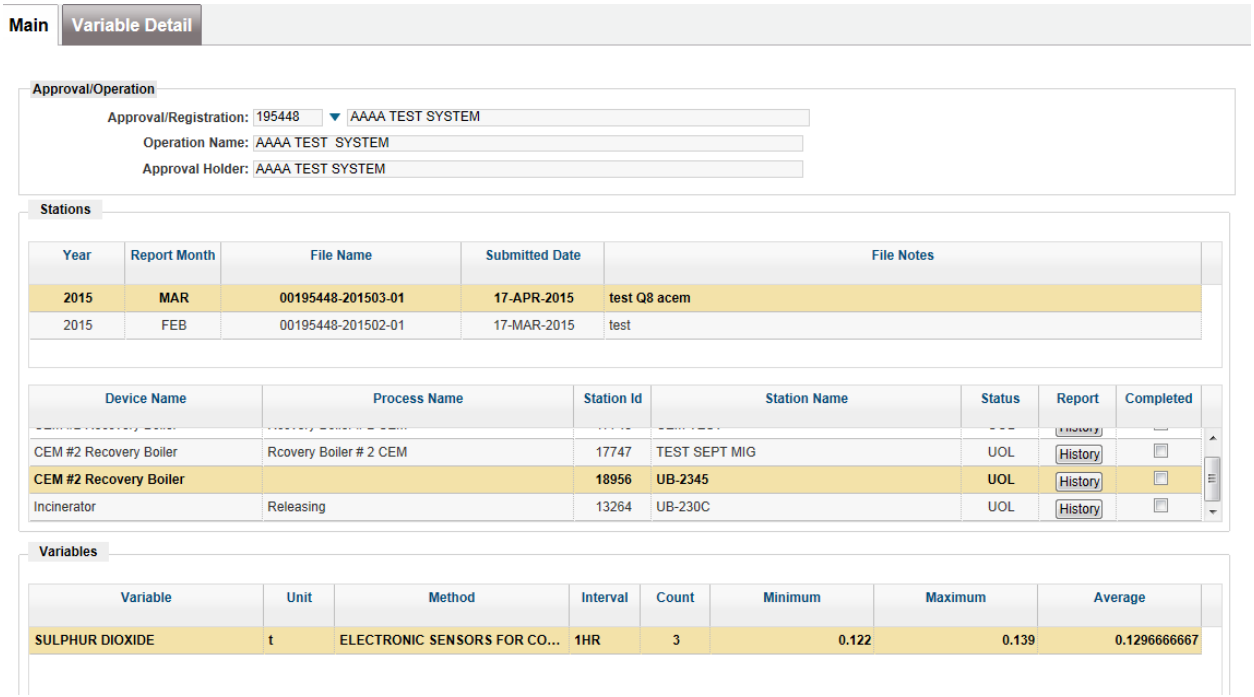
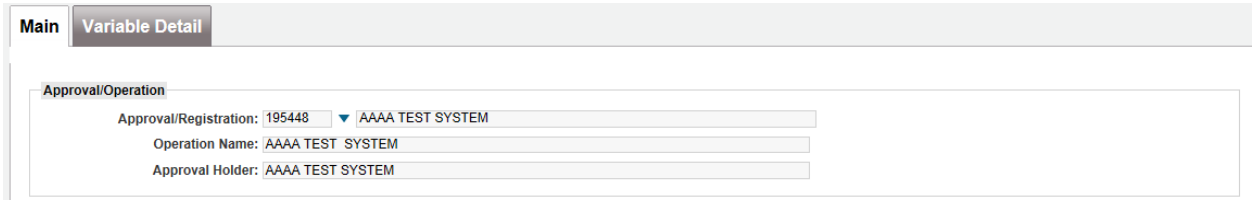
In the example below, the data for March 2015 for the CEM #2 Recovery Boiler UB-2345, Station 18956, and Sulphur Dioxide have been selected for viewing.



If a report is displayed on this web page it has not been submitted to AEP/AER, it must be signed off and a confirmation number assigned before it is deemed submitted.

7.4.3 Variable Details

Next click on the "**Variable Detail"** Tab, you will be able to view the data uploaded to the FTP Site.



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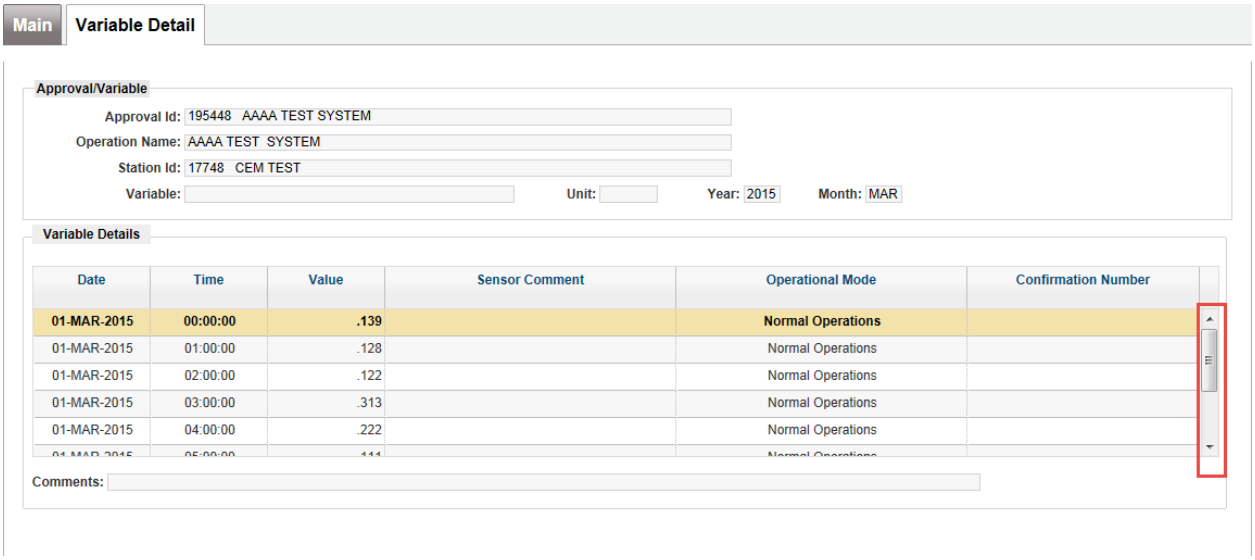
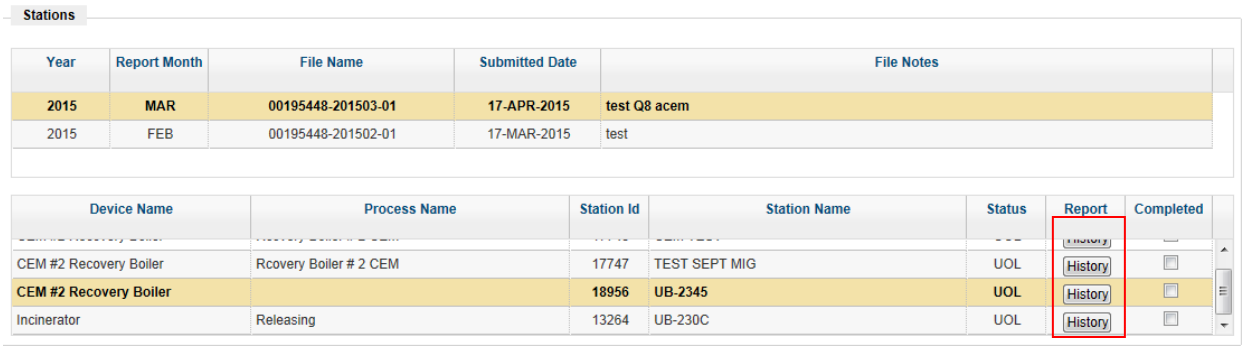
To move through the data use the scroll bar available to the right of the screen.

To return to the main screen select the **"Main"** tab at the top left hand corner of the screen.



7.4.4 Station Status History

By selecting the **"*History*"** button, on the "***Main***" tab you can view all the statuses of the station for the month.



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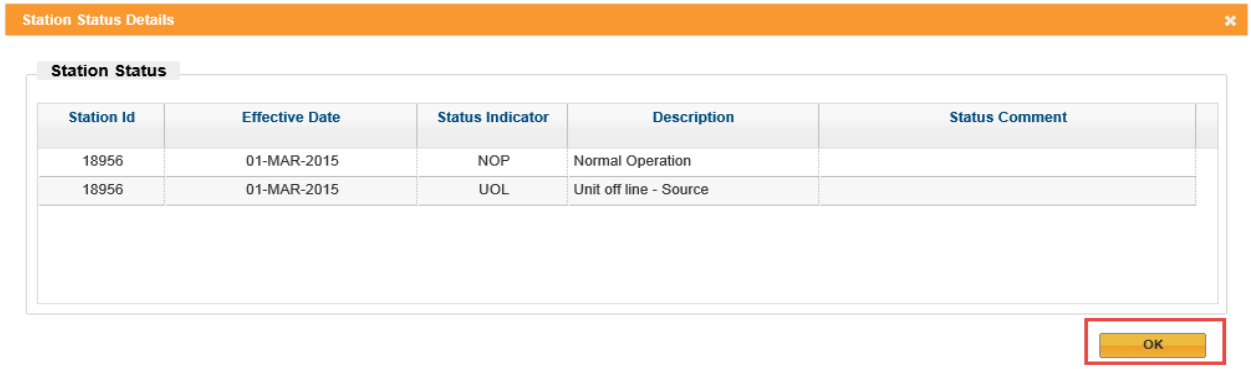
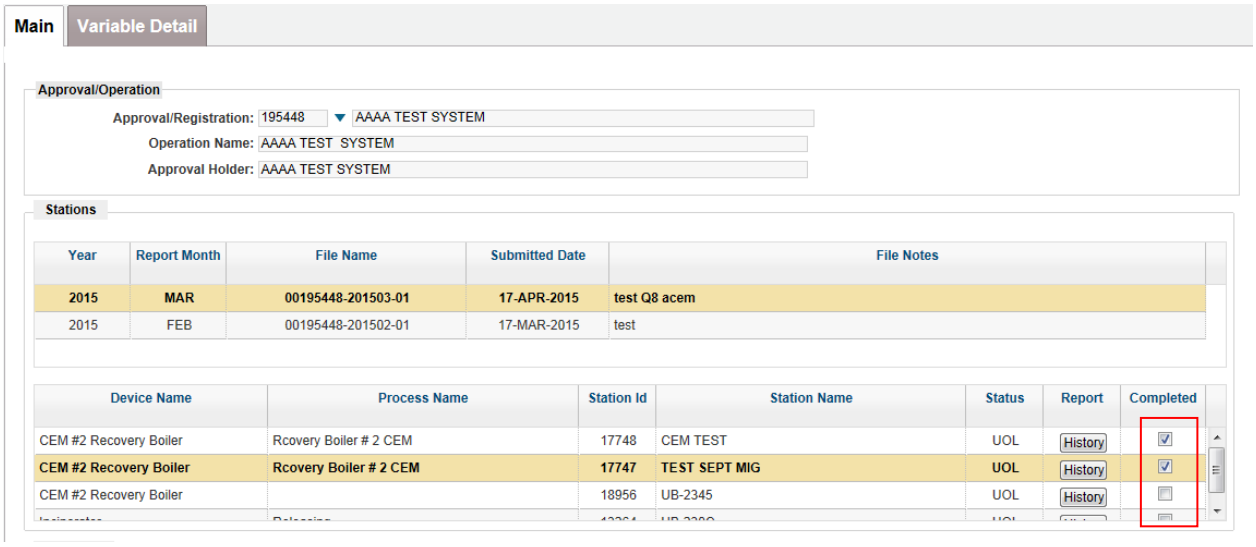
The following screen displays the results of the ***"History"*** Query for Station Status Details.



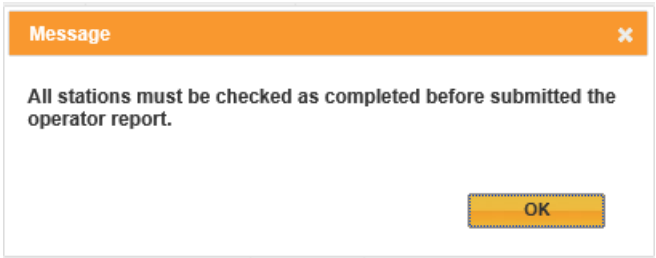
To go back to the main page click on the "OK" button.

7.4.5 Final Steps in signing off the data

Once the data has been verified each station that has a reporting requirement, must be checked as "completed" before the data can be submitted. In the example below, there are 4 stations, but only for two of them the **"Completed"** box has been selected, therefore the file submission would not be accepted.



If all stations have not been checked off as completed, the following message would appear.



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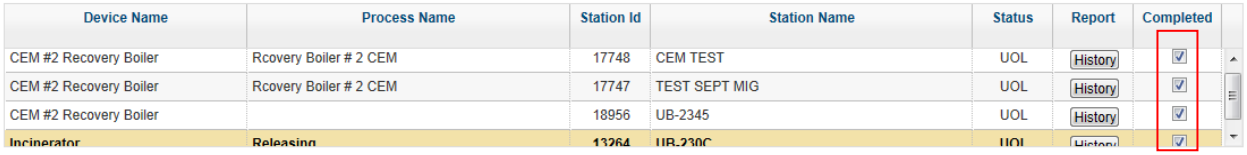
Only once all Stations have been checked as **"Completed"** will the report be accepted for submission.



7.4.6 Submitting the data

Once all the data has been verified and checked off as completed, you are ready to submit the monthly report data. Choose the "**Submit"** button at the bottom right hand corner of the page.

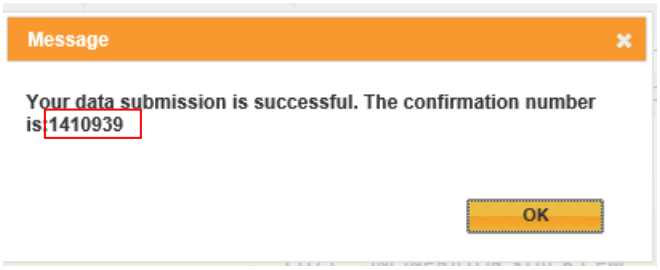
Electronic reporting of CEM Monitoring results is the functional equivalent of written reporting. When you select "OK" it is equivalent to an electronic signature and verifies that the data you have submitted is complete and accurate.

It is at this point that the data is deemed submitted to AEP/AER!

If a report is displayed on this web form, it has not been submitted to AEP/AER. The above steps must be completed and a confirmation number assigned before it is deemed submitted.

7.4.7 Confirmation that the data has been submitted

You will next be presented with a **Data Submission Confirmation Number**. It is important to record this number. This number will be requested in the event that there are any questions or concerns related to this submission.



Once you have finished recording your confirmation number select **"OK".** This will take you back to the original screen, **"Main Tab".**

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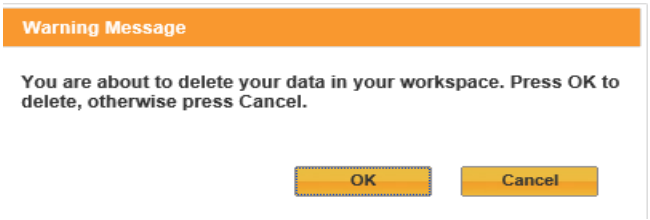
7.5 Deleting data that is assessed as not valid to submit

If you had discovered an error or a deficiency in the data during review prior to data submission, you can delete the data from the Temporary FTP site by choosing the ***"Delete"*** button**.**

You will be asked if you are certain that you want to delete the data. Once deleted, the file will no longer be able to be viewed. The entire month of data, for all stations and variables, will be removed from the system and it will need to be resubmitted.

The file will be required to be re-loaded to the FTP site before the data can be viewed or signed off. If you are certain the data is to be deleted, Choose "OK", if not choose, "Cancel".



Once the data has been Submitted or Deleted, you will be brought back to the original screen, Main tab. The file will no longer be displayed.

Remember: any report displayed on this web-page screen has not been submitted to AEP/AER.

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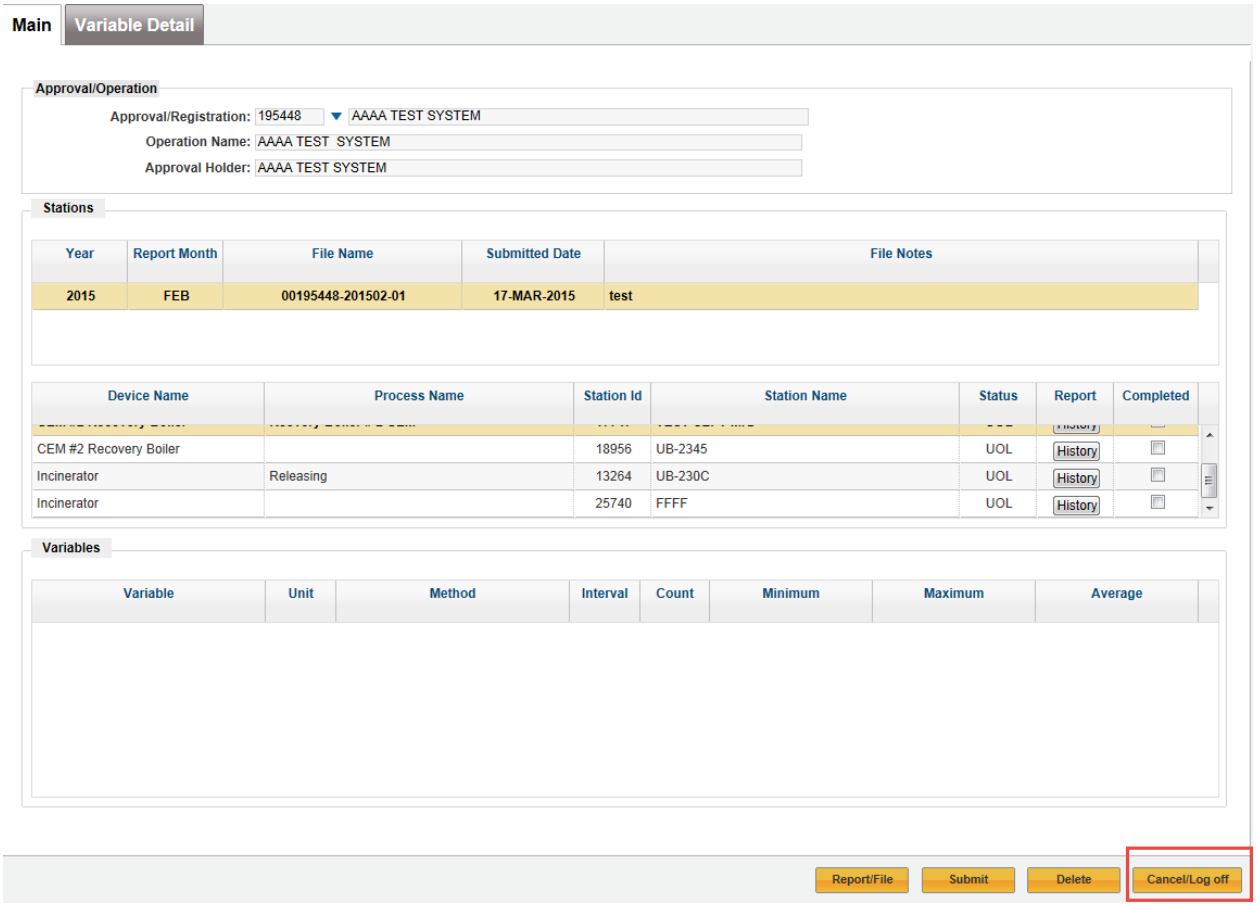
To exit the screen, select the **"Cancel/Logoff"** button.



8. New CEMS Installations

For new installation, data may be generated and Ftp'd to the department prior to the completion of the initial performance specification test procedures, and the coding of the data must reflect the correct status. The data must be flagged in Qualifier 8 field 21 to reflect the correct Performance Specification test periods (PCP/CTP/OTP) and the proper operational mode code associated with the current conditions must be included in the data record.

Facilities reporting CEMS data for the first time might be required to submit data to the AEP/AER test database to ensure the correct reporting format has been attained. This will only be required if a facility is experiencing issues with the proper formatting of the file. Once the data format is deemed correct the facility submitting data to the test database will receive a letter from CEM User Coordinator stating that your data submission will be moved to AEP/AER production database. Until receipt of the letter stating that you are submitting to the production data base, you must also submit a digital monthly Air report to:

- air.reporting@gov.ab.ca

The format of the digital report is dictated by the AMD and needs to include detailed CEMS data.

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Once the new facility is reporting CEMS data electronically to the **production** database, the portion of the digital air report containing the detailed CEMS data is not required to be submitted; only the summary of the CEMS data needs to be submitted (See AMD for Summary Sheet requirements). Please note that you will still be required to make the detailed data available, in a readable format if requested.

8.1 Question and Answer

Question: Are we required to report CEMS data from a new source prior to completing all performance specification test procedures?

Answer: Yes, it should be reported for information purposes only and not for compliance as the data generated is not quality assured. All mass data needs to be reported from the new source with the appropriate flags.

RD|I|12354|2615|1|1HR|kg|2438|20101107|0200|18.00||1HR|99904| TOT||||NOP||PCP||

During the 168 hrs. of conditioning test period (CTP) and the 168 hours of certification operational test period (OTP) these codes need to be used in field 21 as the Data Quality flag.

RD|I|12354|2615|1|1HR|kg|2438|20101107|0200|18.46||1HR|99904|TOT||||NOP||CTP||
RD|I|12354|2615|1|1HR|kg|2438|20101107|0300|18.10||1HR|99904|TOT||||NOP||OTP||

If a RATA is conducted during the operational test period, the analyzer comment RAT needs to be included.

RD|I|12354|2615|1|1HR|kg|2438|20101107|0400|18.00|RAT|1HR|99904|TOT||||NOP||OTP||

Question: Do we have to report analyzer % availability before the entire performance specifications are completed on the new CEMS?

Answer: Yes, it should be reported for information purposes only and not for compliance as the data generated is not quality assured.

RD|I|19040|2592|1|1MON|%|2525|20100301|0000|85||1MON |99934|CML|||generated from non-quality assured data for information purposes only|NOP||PCP||

Question: Our facility is reporting to the test database, and we observed an exceedance of our approval limit, why is my file failing when I report the exceedance in field 20 as per the file format on Section 3.2.3 of this manual?

Answer: The test database is refreshed every few months, if the exceedance occurred after the refresh date the ERC reference number will not be reflected in the test database. One of the file validations is to assess if the information recorded in field 20 is valid based on the information record. The system will assess the ERC reference recorded in field 20 as invalid and reject the file. The process for the test database is to enter the ERC reference number in the comments field and leave field 20 blank.

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9. Back Out of Previously Submitted CEMS Data

In the event that an error is discovered in a submitted data file, the CEM User Coordinator needs to be notified, a Corrective Action Report (CAR) needs to be filled out and the data file must be resubmitted.

An email needs to be sent to the regional AEP/AER Approval Coordinator and to the CEM User Coordinator including the following:

1. The circumstances for which the data is being removed
2. The file name
3. The Data Submission confirmation number
4. Filled out "*AIRF001.XX_Corrective Action Report.*"

Once all the necessary information is provided, the entire month of data, for all stations and variables, will be removed from the system and will be required to be resubmitted with the corrected data.

It is important to remember, to change the sequence number of the filename both for the file **and** in the Header record of the file.

Previously submitted Filename: 00195448-201010-03.mdf

Previously submitted Header Record:

HH|00195448|20101129|Fred@live.ca|201010|00195448-201010-03|report for Oct 2010

In the example above, the sequence number should be changed to 04, indicating this would be the 4th time the file has been submitted.

Revised Filename: 00195448-201010-04.mdf
Revised Header Record:
HH|00195448|20101130|Fred@live.ca|201010|00195448-201010-04| revised report for Oct 2010

9.1 Completing AIRF001.XX_CAR to back-out previously submitted data

Follow the instructions below to fill out the "AIRF001.XX _Corrective Action Report"

On the top of the form fill out the **"Approval Number", "Facility Name", "Report/Electronic file name"** and **"Confirmation Number".**

EPEA Approval Number:	**Facility Name:**
Instructions: Please forward the completed and signed form to CEM User Coordinator: Email: CEM.UserCoord@gov.ab.ca	**Report/Electronic file name:**
	Confirmation number (if for electronic reports):

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Section A of the form is dedicated to describing the problem. In this section, please state the following:

- A description of the problem; this should be concise, but complete.
- The description should include the circumstances for which the data needs to be removed.

Section B of the form contains three sections:

- Details of investigation
    - In the Details of Investigation section please identify what was examined during the investigation.
    - All circumstances related to the problem should be considered. (Ex. software, internal procedures, training, equipment, etc.)
- Identification of the Root Cause
    - In the Identification of Root Cause section, identify the root cause that, if eliminated, will prevent recurrence.
    - Finding the primary cause (root cause) is essential for determining the appropriate CAR plan.
    - Use the "5 Whys" approach to find the root cause. Ask "Why" as many times as necessary to identify the root cause.
- Corrective Action Plan
    - In the Corrective Action Plan Section, the changes to documents, processes, and procedures should be described.

The AIRF001 form is included in Appendix B

9.2 Question and Answer

Question: I have discovered an error in my data file and I have already signed off the data, can I resubmit the data?

Answer: Yes, but you will need to email the CEM User Coordinator and advise them of your situation. In the email attach the completed CAR (see appendix B for a copy of the form.) Once the form has been reviewed and agreed upon by CEM User Coordinator, the CEM User Coordinator will back the data out of the system. An email will be sent to you notifying you of the removal of the file. You will be able to resubmit the revised file. Remember to increase the sequence number of the file, as the system will not allow you to submit the identical file name.

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10. Missing Mass Emission Data

The CEMS Code 1998 states that data derived from operational parameter correlation is defined as substituted data and within this document it will be referenced as missing data. The following has been included as a standard for reporting missing mass emission data. These values are an estimate and are to be flagged to ensure they are not used in the calculation of % availability of the analyzer and/or system. The intent of the data is solely to give the best estimate of the emissions during the time the source is operational, and there is no quality assured data available. These methods can only be used for those facilities that are operating normally.

For missing data during unstable operations, authorization for reporting missing data must be obtained from the Director.

NOTE: If the Methods below are followed and documented in the facility CEMS QAP, authorization from AEP/AER is not required.

10.1 Method 1 - Missing Data Downtime Periods between 1 Hour and 2 Hours

For periods of time between 1 and 2 hours that missing data generation shall be used, the valid hour preceding the event and the valid hour following the event shall be averaged and applied to the event.

$$\mathbf{AVG}_{x} = \frac{\mathbf{Valid\ Hour}_{-1hr} + \mathbf{Valid\ Hour}_{+1hr}}{\mathbf{2}}$$

where:

AVG_x	is the average value applied to the event
$Valid\ Hour_{-1hr}$	is the value for the valid hour preceding the event
$Valid\ Hour_{+1hr}$	is the value for the valid hour following the event

If the reading is of an interval different than 1 hour (i.e. 4hour/12hour) substitute the interval into the equation above.

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10.2 Method 2 - Missing Data Downtime Periods between 2 Hours and 24 Hours

For periods of time greater than 2 hours and up to and including 24 hours that missing data generation shall be used, hourly averages from the 24 valid hours preceding and the 24 valid hours following the CEMS non quality assured data event, data shall be averaged and applied to the entire duration of the event.

$$\mathbf{AVG}_{y} = \frac{\mathbf{AVG}_{-24hr} + \mathbf{AVG}_{+24hr}}{\mathbf{2}}$$

where:

AVG_{y}	is the average value applied to the event
AVG_{-24hr}	is the average value for the 24 valid hours preceding the event
AVG_{+24hr}	is the average value for the 24 valid hours following the event

10.3 Method 3 - Missing Data Downtime Periods between 24 and 120 hours

For periods of time greater than 24 hours and up to 120 hours missing data generation shall be used; the above Method 2 procedure can be applied provided that average values of the missing parameter(s) for the 24 valid hour period preceding and following the event are within 15 per cent of the previous 30 days (720 hours of CEMS one hour data) recorded average. The calculations are completed as follows:

$$\mathbf{\%\ DIFF} = \frac{\mathbf{AVG}_{y} - \mathbf{AVG}_{30\ day}}{\mathbf{AVG}_{30\ day}} \times \mathbf{100}$$

If % DIFF is < ± 15 per cent, then report as per Method 2 within this manual

where:

% DIFF	is the per cent difference between calculated value and previous 30 day average
AVG_{y}	is the average generated using Method 2
$AVG_{30\ day}$	is the average value for the 30 days prior to the event

If the calculated average falls outside of the allowable ± 15 per cent limit or if it is believed that the proposed averages are not representative of the plant operations while the CEMS was offline; a request must be made to the Director with any further information to justify proposed data for reporting.

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10.4 Method 4 - Missing Data Downtime Periods greater than 120 hours

For time periods of missing data greater than 120 hours the Department must be contacted via email outlining how the data will be estimated. Each scenario will need to be assessed to determine the best method of calculating and reporting, authorization must be obtained by the Department prior to the use of the new method.

10.5 Reporting missing data to the Department

Once the above calculation is completed, or authorization is granted, it is permissible to edit the RD records manually or through the data acquisition reporting system by entering the AVG (based on the method used) mass value(s) for the hours the CEMS was not generating quality assured data. The following fields must be edited:

RD|I|A|2616|1|1HR|t|2438|20100812|1000|B|C|1HR|99900|TOT|||D|E||MDA||

Where:

A. The Station ID
B. The sample value as per the method above
C. Sensor Comment Code
D. Comments for source of missing data (to include method used to estimate emissions) (70 character maximum)
E. The operational mode code
F. MDA for missing data

****Note**** **For periods of missing data, the original sensor comment code from the CEMS, and operational mode code still apply and must be used. The field 21 Qualifier 8 must indicate MDA along with an explanation in the comments section of the RD record**.

10.6 Question and Answer

Question: When can I start reporting using Qualifier 8?

Answer: The AEP system has been updated to accept these new codes so reporting is effective with the release of this manual. Effective Jan 2013 the use of backfilling and substitution will no longer be accepted.

Question: During the period I have missing data do I need to report the parameters like temperature and flow?

Answer: If you have the capability of reporting the temperature and flow values they can be submitted to the department with the flag MDA in qualifier 8.

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Question: During Pre-certification Period (PCP) when there is missing data what qualifier should be used and should the missing data still be estimated?

Answer: Qualifier 8 should still be PCP, and in the comments field what method was used for estimating the value should be included.

11. Missing Quality Assured Mass Emission Data

11.1 Reporting quality assured data from an alternative device

All data used in the calculation of the % availability of the analyzer must be quality assured data. If an alternative device is used to generate this data, the method to retrieve the data must be authorized by the Director and must be documented in your QAP.

Data generated by an alternative device (as described in the CEMS Code), that has been given authorization to be reported as quality assured, is to be reported in the following format. This data will be used in the calculation of the % availability of the analyzer and or system.

RD|I|A|2616|1|1HR|t|2438|20100812|1000|B|C|1HR|99900|TOT|||D|E||QAD||

Where:

A. The Station ID
B. The sample value as measured by the approved alternative device
C. Sensor Comment Code
D. Comments regarding the source of quality assured data and the date of the authorization by AEP/AER (70 character maximum)
E. The operational mode code
F. QAD for data generated by an approved alternative device

11.2 Reporting of data during quality control checks

Readings missed due to quality control checks do not negatively impact % availability as described in the CEMS Code. The methods outlined in Section 10 of this manual, may not apply during quality control checks. For example, the last point is held for the duration of a calibration and is then averaged in with the remaining readings in calculation of the hourly reading. The method used to replace mass emission data missed during quality control checks must be described in the facility CEMS QAP.

RD|I|A|2616|1|1HR|t|2438|20100812|1000|B|C|1HR|99900|TOT|||D|E||NQA||

Where:

A. The Station ID
B. The sample value as per the method outlined in the facility QAP
C. Sensor Comment Code
D. Comments outlining section of QAP referenced (70 character maximum)
E. Operational Mode Code
F. NQA for data that is not quality assured, but does not affect the % availability.

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11.3 Question and Answer

Question: With the new field 21 qualifier 8 data flags, is QAD a default for all the quality assured data submitted in the file?

Answer: QAD is intended to flag the data that is being generated by an alternative quality assured source, therefore **only** data being submitted to meet section 11.1 above is to be flagged with QAD.

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12. Tables

The following is a list of Codes that are mandatory in the submission of the mdf file to AEP/AER, no other codes will be allowed by the system. It is the facility's responsibility to choose the codes that best represent the reading being reported.

Table 1 Station Status Codes

Code	Description
BYP	By Pass
NOP	Normal Operation
SHD	Facility shutdown
TRN	Turnaround – facility
UOL	Unit off line

Table 2 Valid Method Variable (VMV) Codes (con't)

VMV CODE	VARIABLE	VARIABLE CODE	UNIT	METHOD
99917	AMMONIA (NH3)	603	kg	2438
99913	CARBON DIOXIDE	2819	g	2438
99910	CARBON MONOXIDE	2612	kg	2438
99911	CARBON MONOXIDE	2612	mg/m3	2438
99912	CARBON MONOXIDE	2612	ppm	2438
97928	CARBON MONOXIDE	2612	ppmdv	2438
99908	CHLORINE (CL2)	423	kg	2438
99909	CHLORINE (CL2)	423	ppm	2438
99931	CHLORINE (CL2)	423	ppm	Summation – 2529
99906	ETHYLENE	2614	kg	2438
99907	ETHYLENE OXIDE	2613	kg	2438
99930	FLOW RATE	2605	m3/s	2438
97929	HYDROGEN CHLORIDE (HCL)	2610	ppmv	2438
99928	HYDROGEN SULPHIDE (H2S)	537	ppm	2438
99903	NITROGEN OXIDE (EXPRESSED AS NO2)	2615	t	2438
99904	NITROGEN OXIDE (EXPRESSED AS NO2)	2615	kg	2438
99905	NITROGEN OXIDE (EXPRESSED AS NO2)	2615	ppm	2438
97930	NITROGEN OXIDE (EXPRESSED AS NO2)	2615	kg	Summation – 2529
99918	OXYGEN	2609	%	2438
99919	PARTICULATE	2608	% Instack opacity	2438

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Table 2 Valid Method Variable (VMV) Codes (con't)

VMV CODE	VARIABLE	VARIABLE CODE	UNIT	METHOD
99886	PARTICULATE TOTAL	2617	t	2438
99900	SULPHUR DIOXIDE (SO2)	2616	t	2438
99901	SULPHUR DIOXIDE (SO2)	2616	kg	2438
99902	SULPHUR DIOXIDE (SO2)	2616	ppm	2438
107195	SULPHUR DIOXIDE (SO2)	2616	t	Flare – 3440
99882	SULPHUR INLET RATE	2573	t	2392
99929	TEMPERATURE	1034	deg C	2438
99927	TOTAL HYDROCARBONS	1031	kg	2438
99921	TOTAL REDUCED SULPHUR (TRS)	2607	kg	2438
99922	TOTAL REDUCED SULPHUR (TRS)	2607	ppm	2438
99924	VINYL CHLORIDE	271	kg	2438
99925	VINYL CHLORIDE	271	ppm	2438
99942	% AVAILABILITY AMMONIA	2594	%	2525
99938	% AVAILABILITY CARBON MONOXIDE	2598	%	2525
99939	% AVAILABILITY CARBON DIOXIDE	2597	%	2525
99937	% AVAILABILITY CHLORINE	2599	%	2525
99935	% AVAILABILITY ETHYLENE	2601	%	2525
99936	% AVAILABILITY ETHYLENE OXIDE	2600	%	2525
99951	% AVAILABILITY FLOW	2585	%	2525
99941	% AVAILABILITY HYDROGEN CHLORIDE	2595	%	2525
99932	% AVAILABILITY HYDROGEN SULPHIDE	2604	%	2525
99934	% AVAILABILITY NITROGEN OXIDE	2602	%	2525
99943	% AVAILABILITY OXYGEN	2593	%	2525
99944	% AVAILABILITY PARTICULATE INSTACK OPACITY	2592	%	2525
99933	% AVAILABILITY SULPHUR DIOXIDE	2603	%	2525
99950	% AVAILABILITY TEMPERATURE	2586	%	2525
99952	% AVAILABILITY TOTAL HYDROCARBONS	2584	%	2525
99946	% AVAILABILITY TOTAL REDUCED SULPHUR	2590	%	2525
99948	% AVAILABILITY VINYL CHLORIDE	2588	%	2525

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Table 3 Interval/Duration	
Code	**Description**
1MIN	1 minute
6MIN	6 minutes
1HR	1 hour
2HR	2 hours
3HR	3 hours
4HR	4 hours
12HR	12 hours
24HR	24 hours (*Calendar day*)
48HR	48 Hour
1MON	Month (*Calendar month*)
30DAY	30 Days
90DAY	90 Days
1QTR	Quarter
720HR	720 hr rolling average
365DAY	365 day rolling average

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Table 4 Unit	
UNIT	**Description**
kg	KILOGRAMS
ppm	PARTS PER MILLION VOLUME
ppmdv	PARTS PER MILLION VOLUME DRY VOLUME
mg/m3	MILLIGRAMS/CUBIC METER
g	GRAMS
%	PER CENT
deg C	DEGREES CELSIUS
m3/s	CUBIC METRES/SECOND
t	METRIC TONNES

Table 5 Method Code	
Code	**Description**
2438	Continuous Emission Monitor
2525	Calculation % Availability
2529	Summation of Sources
2392	Calculation of S30
3440	Flare

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Table 6 Null Data / Analyzer Code	
The use of these codes varies from facility to facility; therefore there is a need to provide a description in your CEMS QAP on how they apply to your facility. Not all codes will apply to your facility.	
Code	**Description**
AMH	Analyzer malfunction, Out of range high
AML	Analyzer malfunction, Out of range low
ANM	Analyzer malfunction
CAL	Calibration
CGA	Certified Gas Audit
COM	Commissioning
CP	Computer Malfunction
CSS	Compliance Stack Survey
GEN	General Comments
HEA	High Excess Air
OOC	Out of control
OTH	Other (This code should only be used when no other code listed will identify the status of the sample value, a description **must** be included in the comments to describe the situation)
PAR	Partial Hour
PRM	Preventative Maintenance
RAT	RATA
SSA	Audit Stack Survey (compliance Check)
TAD	Time Adjustment
UOL	Unit off line

Table 7 Reading Type	
Code	**Description**
MIN	Minimum
MAX	Maximum
TOT	Total or Sum
AVG	Average
RAV	Rolling Average
CML	Cumulative
CON	Consecutive

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Table 8 Operational Mode Codes

The Operational Mode Code is a mandatory field and is used in assessing compliance. The use of these codes varies from facility to facility; therefore there is a need to provide a description in your CEMS QAP on how they apply to your facility. Not all codes will apply to your facility. In the event that there are multiple codes which could describe the status of your facility, use the code which best describes the state your source was in for the longest duration of the interval being observed.

Code	Description
ALL	Default –AEP use only, indicates limit is applied to all Operational mode codes.
AUF	Auxiliary Firing
BDS	Bed switching
BYP	By Pass
DIS	Diesel Fuel
EMC	Emergency Conditions
EOC	Excess Oxygen Conditions
HIS	High Inlet Sulphur
HTS	Heat Soak
MCG	MCES not functioning for 12hrs or more
MCL	MCES not functioning for less than 12 hours
NOP	Normal Operations
PET	Performance Testing – approved performance testing (ie Temperature reduction)
PHF	Phase 2 off
PHO	Phase 1 on
PUS	Process Upset
SCH	Scheduled Shutdown
SC1	Scheduled shutdown unit 1
SC2	Scheduled shutdown unit 2
SGD	Shutting down
SRF	Sulphur Recovery Unit OFF
STU	Starting up
TRN	Turnaround
UOL	Unit off Line

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Table 9 Value Attribute	
Code	**Description**
L	LESS THAN THE REPORTED VALUE
G	GREATER THAN THE REPORTED VALUE
T	“TRACE” VALUE;IE. LESS THAN REPORTED VALUE BUT PRESENCE WAS DETECTED

Table 10 Data quality flag- Qualifier 8	
Code	**Description**
CTP	Conditioning Test Period – as Described in section 4.5.1 of the CEMS Code 1998
OTP	Operational Test Period– as Described in section 4.5.2 of the CEMS Code 1998
PCP	Pre-certification period (max 6 month after installation of CEMS) data generated prior to initial certification RATA
MDA	Missing data
QAD	Quality assured data - is intended to flag the data that is being generated by an alternative quality assured source only to replace missing data. Therefore **only** data being submitted to meet section 11.1 is to be flagged with QAD.
NQA	Non quality assured mass data that does not affect the % availability, such as data generated during quality assurance activities such as calibrations or CGA.

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13. Appendices

13.1 Appendix A: Template of codes

VMV CODE	VARIABLE	VARIABLE CODE	UNIT	METHOD	INTERVAL	DURATION	READING TYPE
99930	AIR FLOW	2605	m3/s	2438 (CEM)	1HR	1HR	AVG
99917	AMMONIA (NH3)	603	kg	2438 (CEM)	1HR	1HR	TOT
99913	CARBON DIOXIDE	2819	g	2438 (CEM)	1HR	1HR	TOT
99910	CARBON MONOXIDE	2612	kg	2438 (CEM)	1HR	1HR	TOT
99911	CARBON MONOXIDE	2612	mg/m3	2438 (CEM)	1HR	1HR	TOT
99912	CARBON MONOXIDE	2612	ppm	2438 (CEM)	1HR	1HR	AVG
99908	CHLORINE (CL2)	423	kg	2438 (CEM)	1HR	1HR	TOT
99908	CHLORINE (CL2)	423	kg	2438 (CEM)	24HR*	24HR*	TOT
99909	CHLORINE (CL2)	423	ppm	2438 (CEM)	1HR	1HR	AVG
99931	CHLORINE (CL2)	423	ppm	2529 (summation)	1HR	1HR	AVG
99906	ETHYLENE	2614	kg	2438 (CEM)	1HR	1HR	TOT
99906	ETHYLENE	2614	kg	2438 (CEM)	24HR*	24HR	TOT
99907	ETHYLENE OXIDE	2613	kg	2438 (CEM)	1HR	1HR	TOT
99916	HYDROGEN CHLORIDE (HCL)	2610	mg/m3	2438 (CEM)	1HR	1HR	TOT
99928	HYDROGEN SULPHIDE (H2S)	537	ppm	2438 (CEM)	1HR	1HR	AVG
99904	NITROGEN OXIDE (EXPRESSED AS NO2)	2615	kg	2438 (CEM)	1HR	1HR	TOT
97930	NITROGEN OXIDE (EXPRESSED AS NO2)	2615	kg	2529 (summation)	1HR	1HR	TOT
99905	NITROGEN OXIDE (EXPRESSED AS NO2)	2615	ppm	2438 (CEM)	1HR	1HR	AVG
99903	NITROGEN OXIDE (EXPRESSED AS NO2)	2615	t	2438 (CEM)	1HR	1HR	TOT
99918	OXYGEN	2609	%	2438 (CEM)	1HR	1HR	AVG
99919	PARTICULATE	2608	% Instack opacity	2438 (CEM)	1HR	1HR	AVG
99886	PARTICULATE TOTAL	2617	t	2438 (CEM)	1HR	1HR	TOT
99901	SULPHUR DIOXIDE (SO2)	2616	kg	2438 (CEM)	12HR*	12HR	TOT
99901	SULPHUR DIOXIDE (SO2)	2616	kg	2438 (CEM)	1HR	1HR	TOT
99901	SULPHUR DIOXIDE (SO2)	2616	kg	2438 (CEM)	1HR	1QTR	TOT
99901	SULPHUR DIOXIDE (SO2)	2616	kg	2438 (CEM)	24HR*	24HR	TOT

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Appendix A Template of codes (con't)

VMV CODE	VARIABLE	VARIABLE CODE	UNIT	METHOD	INTERVAL	DURATION	READING TYPE
99901	SULPHUR DIOXIDE (SO2)	2616	kg	2438 (CEM)	4HR*	4HR	TOT
99902	SULPHUR DIOXIDE (SO2)	2616	ppm	2438 (CEM)	1HR	1HR	AVG
99900	SULPHUR DIOXIDE (SO2)	2616	t	2438 (CEM)	12HR*	12HR	TOT
99900	SULPHUR DIOXIDE (SO2)	2616	t	2438 (CEM)	1HR	1HR	TOT
99900	SULPHUR DIOXIDE (SO2)	2616	t	2438 (CEM)	24HR	24HR	TOT
99900	SULPHUR DIOXIDE (SO2)	2616	t	2438 (CEM)	1HR	1QTR	TOT
99900	SULPHUR DIOXIDE (SO2)	2616	t	2438 (CEM)	24HR	1YR	AVG
97680	SULPHUR DIOXIDE (SO2)	2616	t	2529 (summation)	24HR*	24HR	RAV
97680	SULPHUR DIOXIDE (SO2)	2616	t	2529 (summation)	24HR	90DAY	RAV
97680	SULPHUR DIOXIDE (SO2)	2616	t	2529 (summation)	24HR	365DAY	RAV
97680	SULPHUR DIOXIDE (SO2)	2616	t	2529 (summation)	1QTR	1QTR	TOT*
99900	SULPHUR DIOXIDE (SO2)	2616	t	2438 (CEM)	4HR*	4HR	TOT
107195	SULPHUR DIOXIDE (SO2)	2616	t	3440 (flare)	24HR	24HR	TOT
99882	SULPHUR INLET RATE	2573	t	2392 (CALC S30)	1HR	24HR	AVG
99882	SULPHUR INLET RATE	2573	t	2392	24HR*	24HR	AVG
99882	SULPHUR INLET RATE	2573	t	2392	24HR	1MON	AVG
99929	TEMPERATURE	1034	deg C	2438 (CEM)	1HR	1HR	AVG
99927	TOTAL HYDROCARBONS	1031	kg	2438 (CEM)	1HR	1HR	TOT
99921	TOTAL REDUCED SULPHUR (TRS)	2607	kg	2438 (CEM)	12HR*	12HR	TOT
99921	TOTAL REDUCED SULPHUR (TRS)	2607	kg	2438 (CEM)	1HR	1HR	TOT
99921	TOTAL REDUCED SULPHUR (TRS)	2607	kg	2438 (CEM)	1HR	1QTR	TOT
99921	TOTAL REDUCED SULPHUR (TRS)	2607	kg	2438 (CEM)	24HR*	24HR	TOT
99921	TOTAL REDUCED SULPHUR (TRS)	2607	kg	2438 (CEM)	4HR*	4HR	TOT

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Appendix A Template of codes (con't)

VMV CODE	VARIABLE	VARIABLE CODE	UNIT	METHOD	INTERVAL	DURATION	READING TYPE
99922	TOTAL REDUCED SULPHUR (TRS)	2607	ppm	2438 (CEM)	1HR	1HR	AVG
99924	VINYL CHLORIDE	271	kg	2438 (CEM)	24HR*	24HR	TOT
99925	VINYL CHLORIDE	271	ppm	2438 (CEM)	1HR	1HR	AVG
99942	% AVAILABILITY AMMONIA	2594	%	2525	1MON	1MON	CML
99939	% AVAILABILITY CARBON DIOXIDE	2597	%	2525	1MON	1MON	CML
99938	% AVAILABILITY CARBON MONOXIDE	2598	%	2525	1MON	1MON	CML
99937	% AVAILABILITY CHLORINE	2599	%	2525	1MON	1MON	CML
99935	% AVAILABILITY ETHYLENE	2601	%	2525	1MON	1MON	CML
99936	% AVAILABILITY ETHYLENE OXIDE	2600	%	2525	1MON	1MON	CML
99951	% AVAILABILITY FLOW	2585*	%	2525	1MON	1MON	CML
99941	% AVAILABILITY HYDROGEN CHLORIDE	2595	%	2525	1MON	1MON	CML
99932	% AVAILABILITY HYDROGEN SULPHIDE	2604*	%	2525	1MON	1MON	CML
99934	% AVAILABILITY NITROGEN OXIDE	2602	%	2525	1MON	1MON	CML
99943	% AVAILABILITY OXYGEN	2593	%	2525	1MON	1MON	CML
99944	% AVAILABILITY PARTICULATE	2592	%	2525	1MON	1MON	CML
99933	% AVAILABILITY SULPHUR DIOXIDE	2603	%	2525	1MON	1MON	CML
99950	% AVAILABILITY TEMP	2586*	%	2525	1MON	1MON	CML
99952	% AVAILABILITY TOTAL HYDROCARBONS	2584*	%	2525	1MON	1MON	CML
99946	% AVAILABILITY TOTAL REDUCED SULPHUR	2590	%	2525	1MON	1MON	CML
99948	% AVAILABILITY VINYL CHLORIDE	2588	%	2525	1MON	1MON	CML

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13.2 Appendix B: Template AIRF001.XX_Corrective Action Report

Alberta Government

AIRF001.XX_Corrective Action Report

Air Quality, Data Management and Stewardship

EPEA Approval Number:	**Facility Name:**
Instructions: Please forward the completed and signed form to CEM User Coordinator: Email: CEM.UserCoord@gov.ab.ca	**Report/Electronic file name:**
	Confirmation number (if for electronic reports):

SECTION A: DESCRIPTION OF PROBLEM
Description of problem:

SECTION B: DETAILS OF INVESTIGATION, ROOT CAUSE AND ACTION PLAN
Details of Investigation: (Briefly identify what was examined during investigation)

Identification of Root Cause: (Identify the root cause that, if eliminated, will prevent recurrence)

Identify the Corrective Action Plan which will permanently address the causes identified above. (Include ESRD Reference number if applicable)

Plan Completed by:	**Date:**

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